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Dry Creek Interceptor Project C200442 in Wichita, Sedgwick County, Kansas

(U.S.) Environmental Protection Agency
Kansas City, MO

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U.S. Department of Commerce
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United States
Environmental Protection
Agency

Region 7
324 East Eleventh St.
Kansas City, Mo. 64106

EPA-907/9-80-001
February, 1980

Environmental Impact Statement

Final

Dry Creek Interceptor
Wichita, Sedgwick, Kansas

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County - WWTP-80

FINAL ENVIRONMENTAL IMPACT STATEMENT

For

DRY CREEK INTERCEPTOR PROJECT C200442

in

WICHITA, SEDGWICK COUNTY, KANSAS

Prepared by

U.S. Environmental Protection Agency, Region VII

Kansas City, Missouri

Abstract: The Environmental Impact Statement evaluated five interceptor alternatives to replace approximately 1700 linear feet of hydraulically overloaded and structurally deteriorated interceptors. Based on a comparative analysis of both monetary and nonmonetary impacts of the alternatives, EPA has selected the Bluff Gravity Alternative as the alternative which it will fund.

EPA will take no administrative action on this project for 30 days from the date that EPA's Office of Environmental Review publishes notice of availability of the EIS in the Federal Register.

For further information contact:

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APPROVED BY:

Kathleen Q. Camin 1/29/80
Kathleen Q. Camin, Ph.D. Date
Regional Administrator

SUMMARY

DRY CREEK INTERCEPTOR PROJECT C200442
FOR
WICHITA, SEDGWICK COUNTY KANSAS

( ) Draft (X) Final

Responsible Office: U.S. Environmental Protection Agency, 324 East Eleventh Street, Kansas City, Missouri 64106, Telephone 816/374-2921.

1. Type of Action: (X) Administrative ( ) Legislative

2. Description of the Action: The primary purpose of the Dry Creek Interceptor is to transport the domestic wastes generated by a population of approximately 18,500 people within the 4.9 square mile sewer district. However, the existing sewer is often overloaded by rain water leaking into the sewer through cracks, breaks and unapproved connections. In order to eliminate this condition, the City of Wichita applied to the Environmental Protection Agency (EPA) for a grant to replace the existing interceptor with a larger pipe which will eliminate this overloading.

On June 29, 1979, EPA released a draft Environmental Impact Statement (EIS) on the city's proposed alternative and four additional alternatives which were evaluated as a part of the EIS. On August 1, 1979, EPA held a Public Hearing to receive comments on the draft EIS. Written comments were accepted until August 13, 1979.

3. The Preferred Alternative: The Environmental Protection Agency has selected the Bluff Street Gravity Alternative for Federal funding. This alternative consists of approximately 2300 linear feet of 36-inch gravity sewer within the Bluff and Kinkaid Street roadways and 1200 linear feet of 24-inch gravity sewer between Pawnee Avenue and Whitney Lane. This alternative requires placement of a 10-inch plastic liner in the existing Dry Creek Interceptor.

In selection of this alternative, EPA considered both monetary and non-monetary aspects of the five alternatives.

EPA's analysis indicated that the Dry Creek Alternative would have serious long-term detrimental effects on the ecological setting of both the Dry Creek Basin and the metropolitan Wichita area. The woodland between the intersection of Bluff and Mt. Vernon Streets, and George Washington Boulevard represents one of the last remaining streamside wooded areas in the city. As such the area provides a unique and important resource.

The major disturbance of this woodland with the Dry Creek Alternative was balanced against the increased cost and nonmonetary considerations of public inconvenience, public safety and minor woodland disturbance associated with the Bluff Street Gravity Alternative. Since the impacts associated with the Bluff Street Gravity Alternative are of limited duration and mitigative measures are available, the effects will be minimized.

After considering this trade-off, EPA has determined that the integrity of the Dry Creek woodland is the overriding consideration and that the Bluff Street Gravity Alternative would permit project implementation with the least environmental harm.

In order to receive Federal funding, EPA will require that the City of Wichita amend its grant application to reflect this alternative and the conditions presented in Chapter IX of this Environmental Impact Statement.

Agencies, organizations, and persons to whom copies of the statement were sent for review and comment:

Federal Agencies

- U.S. Department of Agriculture
    - Agricultural Stabilization and Conservation Service
    - Soil Conservation Service
- U.S. Department of Defense
    - Army Corps of Engineers
- U.S. Department of Health, Education and Welfare
- U.S. Department of Housing and Urban Development
- U.S. Department of Interior
    - Fish and Wildlife Service
    - Geological Survey
    - Heritage Conservation and Recreation Service
- U.S. Department of Transportation
    - Federal Highway Administration
- Advisory Council on Historic Preservation

Members of Congress

Robert Dole, U.S. Senate
Nancy Kassebaum, U.S. Senate
Daniel Glickman, U.S. House of Representatives
Robert Whittaker, U.S. House of Representatives

State Agencies

Department of Agriculture
Department of Budget
Department of Health and Environment
Department of Transportation
Fish and Game Commission
State Biological Survey
State Geological Survey
State Historical Survey
State Park and Recreation Authority
Water Resources Board

State Representatives

Sandy Duncan, Kansas House of Representatives

Local and Regional

- City of Wichita
  - Mayor and Commission
  - Community Development
  - Water and Water Pollution Control Department
  - Public Works Department
  - Board of Park Commissioners
  - Police Department
  - Fire Department
- Wichita-Sedgwick County
  - Department of Community Health
  - Metropolitan Area Planning Commission
  - Environmental Advisory Board
  - Citizens Participation Organization

Interested Groups

Kansas Wildlife Federation
Kansas Chapter Wildlife Federation
Audubon Society, Wichita Chapter
Sierra Club-Southwind Group
Izaak Walton League of America, Wichita Chapter
Friends of the Earth
Ks. Ornithological Society
Bird Populations Institute
National Wildlife Federation
Dry Creek Association
Archeological Association of South-Central Kansas
St. Christopher Episcopal Church

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Wichita, Kansas

Responsibility: Provide preliminary engineering information on alternatives.

TABLE OF CONTENTS

Chapter No. Page No.

I PROJECT DESCRIPTION 1

- Introduction 1
- Issues 1
- Location 1
- History 2
- Present Interceptor Conditions 6
- Public Participation 6

II ENVIRONMENTAL SETTING 7

- Climate 7
- Topography 7
- Geology 7
- Soil 10
- Groundwater Quality and Quantity 13
- Surface Water Quality and Quantity 13
- Air Quality 14
- Land Use 14
- Population 19
- Employment 19
- Parkland and Open Space 19
- Public Services 25
- Cultural Resources 25
- Noise 26
- Biota: Dry Creek Basin 26
- Biota: Dry Creek Channel Primary 32

III ALTERNATIVES 37

- Introduction 37
- Dry Creek Interceptor Alternative 37
- Mt. Vernon Gravity Interceptor Alternative 37
- Mt. Vernon Force Main Interceptor Alternative 39
- Bluff Gravity Interceptor Alternative 39
- Bluff Force Main Alternative 42
- No Action Alternative 42

TABLE OF CONTENTS

Chapter No. Page No.

IV ENVIRONMENTAL IMPACTS OF ALTERNATIVES 45

- Increased Noise Levels 45
- Decreased Property Values 45
- Increased Urban Development 45
- Dry Creek Alternative 46
  - Decreased Aesthetic Value 46
  - Disruption of a Natural Area and Its Associated Wildlife 46
  - Stream Erosion 48
  - Public Safety 49
  - Public Inconvenience 49
- Mt. Vernon Gravity and Force Main Alternatives 50
  - Energy Use 50
  - Decreased Aesthetic Value 50
  - Disruption of a Semi-Natural Area and Its Associated Wildlife 50
  - Stream Erosion 52
  - Public Safety 52
  - Public Inconvenience 53
- Bluff Street Gravity and Force Main Alternatives 53
  - Energy Use 53
  - Decreased Aesthetic Value 53
  - Disruption of a Semi-Natural Area and Its Associated Wildlife 54
  - Stream Erosion 54
  - Public Safety 58
  - Public Inconvenience 58

V SUMMARY, EVALUATION AND ALTERNATIVE SELECTION

VI UNAVOIDABLE IMPACTS OF THE BLUFF GRAVITY ALTERNATIVE

VII RELATIONSHIP BETWEEN SHORT-TERM USE OF THE ENVIRONMENT AND LONG-TERM PRODUCTIVITY

TABLE OF CONTENTS

Chapter No. Page No.

VII IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OR RESOURCES

IX STEP TO MINIMIZE HARM TO THE ENVIRONMENT

X RESPONSES TO COMMENTS

APPENDIX I: FLORA AND FAUNA OF IMPACT AREA

APPENDIX II: CAPITAL COST AND PRESENT WORTH OR ALTERNATIVES

APPENDIX III: DETERMINATION OF SEWER NEED

APPENDIX IV: LANDOWNERS ALONG DRY CREEK

LIST OF FIGURES

Figure No.		Page No.
1	Principal Sewers in or Adjacent to Dry Creek Sanitary Sewer District	
2	Location of Dry Creek Sanitary Sewer District	5
3	Monthly Rainfall Distribution	8
4	Monthly Temperature Distribution	9
5	Soils of The Dry Creek District	11
6	Dry Creek Flood Hazard Areas and Location of Streamflow Recording Stations	15
7	Air Quality	18
8	Dry Creek Growth Areas	21
9	Parkland, Open Space, and Schools in The Dry Creek Basin	23
10	Fire Stations, Hospitals, and Churches in The Dry Creek Basin	27
11	Transportation Facilities in The Dry Creek Basin	29
12	Noise Survey Locations	31
13	Woodland Habitat of Primary Impact Area	33
14	Route of Dry Creek Alternative	38
15	Route of Mt. Vernon Alternatives	40
16	Route of Bluff Alternatives	41
17	Construction Corridor for Dry Creek Alternative	47
18	Construction Sites for Slipliner Placement	51
19	Potential Access Disruption for Mt.Vernon Alternatives	55

LIST OF FIGURES

Figure No.		Page No.
20	Construction Corridor for Bluff Alternatives	57
21	Potential Access Disruption for Bluff Alternatives	59

LIST OF TABLES

Table No.		Page No.
I	Water Quality of Dry Creek	17
II	Employment Opportunities Within Dry Creek Basin	20
III	Woodland Densities Along Dry Creek Channel	34
IV	Summarization of Impacts	72-73
V	Evaluation of Alternatives	77-78

CHAPTER I: PROJECT DESCRIPTION

Introduction

The City of Wichita, Kansas, has applied to the U.S. Environmental Protection Agency (EPA) for Federal financial assistance to improve wastewater treatment facilities within the city's Dry Creek Sewer District. This request for a grant is within the authority of EPA as defined in Section 201 of the Federal Water Pollution Control Act (FWPCA) as amended (PL 92-500). In reviewing this application, EPA must consider, not only the provisions of the FWPCA, but also the mandates of the National Environmental Policy Act (NEPA) of 1969. This law requires that all Federal agencies consider in their decision making process all potential environmental effects or impacts of their proposed actions, and make provisions either to avoid or to minimize the unavoidable adverse effects of the proposed action. NEPA further requires that all agencies of the Federal government prepare a detailed environmental impact statement (EIS) for projects that are deemed by the agency to have a significant impact on the quality of the human environment. The statement is a document which provides for public participation in the agencies' decision and, in the case of EPA, must follow specific regulations contained in 40 CFR, Part 6 as published in the Federal Register, Vol. 40, No. 72, April 14, 1975.

Issues

The wastewater facilities plan developed for the project proposed that a portion of the Dry Creek interceptor be replaced due to hydraulic overloading and structural deterioration of the existing interceptor (Figure 1). The portion identified as needing replacement is within a residential area bordering the Dry Creek urban wilderness. Substantial local opposition and controversy developed over the possible biological and aesthetic disruption of the area and decreased property values caused by construction-necessitated intrusion. Based on these considerations EPA decided that an EIS was needed.

Location

The total Dry Creek Basin project is located within the eastern portion of Wichita, Sedgwick County in south-central Kansas, and is concurrent with the Dry Creek Sanitary Sewer District boundary

(Figure 2). This district (one of 13 sewer districts operating within the corporate limits of Wichita), covers approximately 4.9 square miles, and is bordered on the north by 20th Street North, on the west by Hillside Avenue, on the south by George Washington Boulevard, and on the east by Woodlawn Avenue.

The area of specific concern within this total project area is the Dry Creek wooded area (Figure 1) in the vicinity of George Washington and Mt. Vernon Road.

History

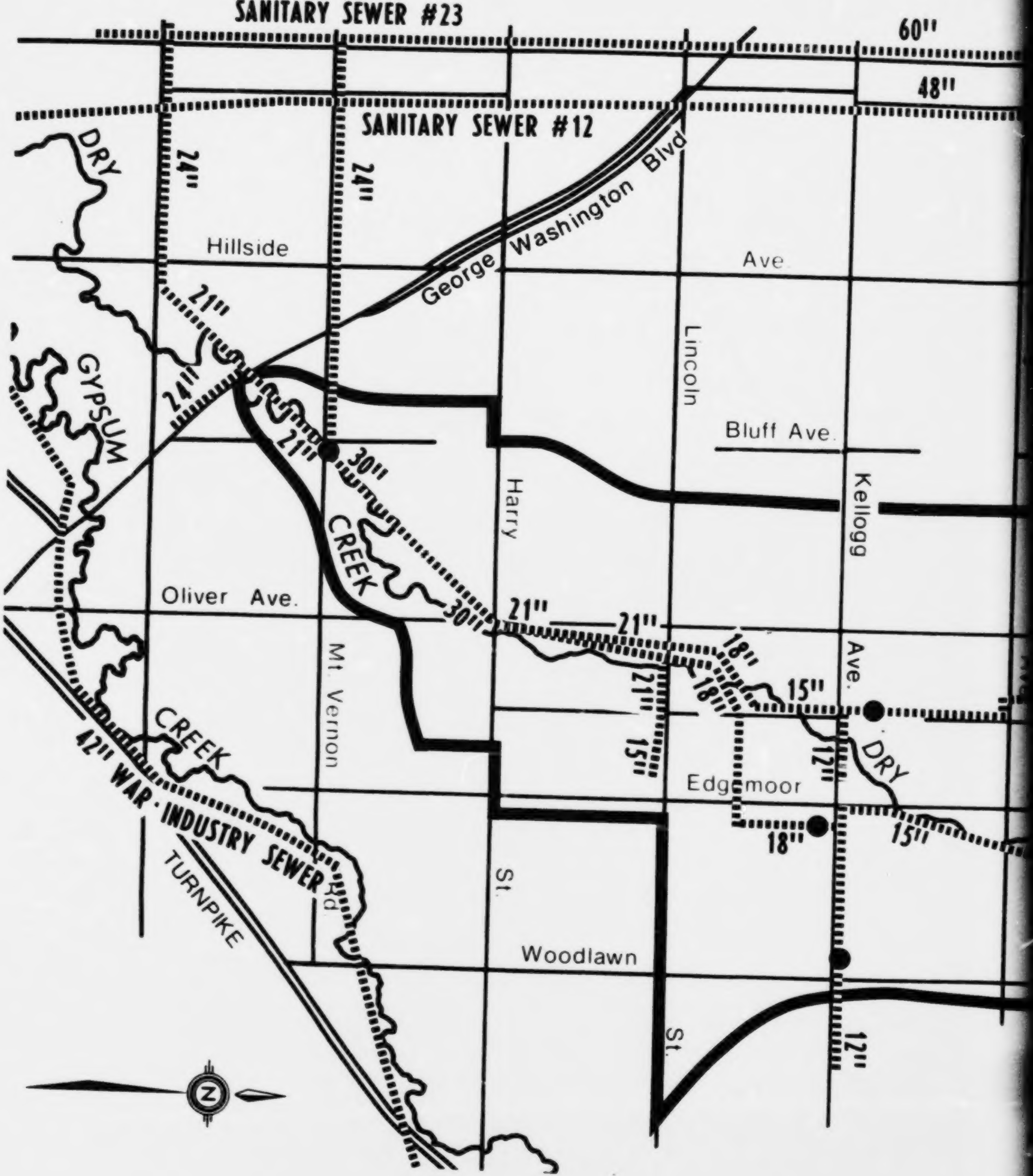
The Dry Creek interceptor project has been a subject of local Wichita concern for several years. "The Next Thirty Years" (1971), a sewerage facility plan for Wichita and Sedgwick County, rated replacement of the Dry Creek interceptor as the second priority in the implementation of this plan. The rationale used in assigning this priority included the fact that the present interceptor was hydraulically overloaded and had structurally deteriorated due to age.

In May 1974, the City of Wichita made a preliminary application to EPA for grant assistance to construct a portion of the Dry Creek interceptor within the George Washington right-of-way. This request was denied by EPA because an engineering report and construction plans and specifications were not available for review. The City of Wichita constructed this portion of the interceptor without Federal funding (Figure 1).

In August 1977, a grant application was received by EPA for Federal funding to complete the rehabilitation of the remaining portion of the Dry Creek interceptor. On September 12, 1977, the facilities plan for this project was approved and an Environmental Impact Appraisal and a Negative Declaration were issued. The formal grant award for construction was made on September 30, 1977, and accepted by the City of Wichita on October 24, 1977. Subsequently, final construction plans and specifications were approved on February 27, 1978. However, when public controversy developed over potential destruction of the Dry Creek wooded area, both the Environmental Impact Appraisal and the Negative Declaration were reevaluated. Subsequently, on July 26, 1978, EPA rescinded the Negative Declaration and issued a Notice of Intent to prepare an EIS on the proposed project.

Figure 1

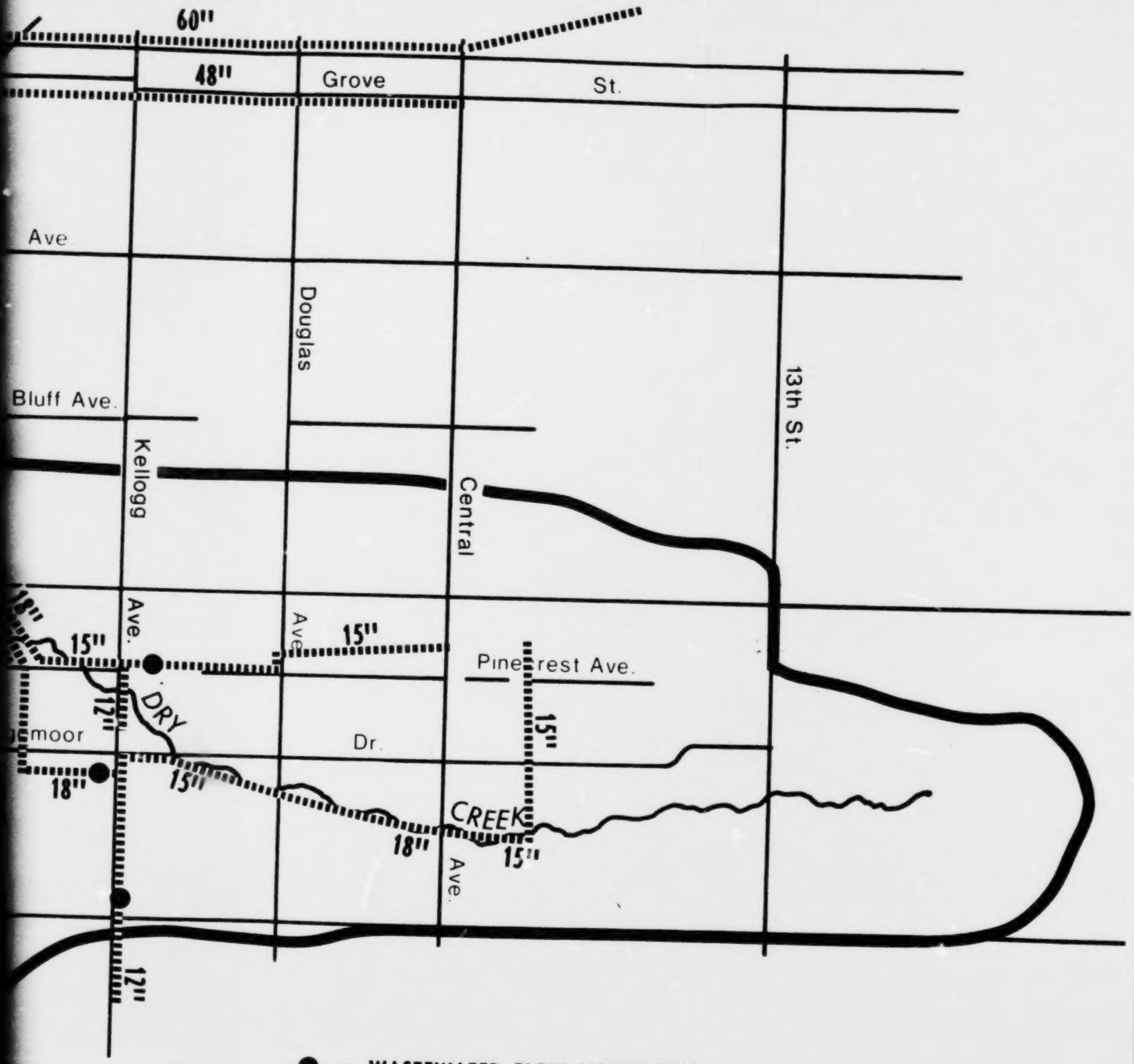
PRINCIPAL SEWERS IN OR ADJACENT TO DRY


SANITARY SEWER #23
60"
48"
SANITARY SEWER #12
DRY
24"
24"
George Washington Blvd
Hillside
Ave.
21"
24"
GYPSUM
Lincoln
Bluff Ave.
21"
30"
Harry
Kellogg
CREEK
Oliver Ave.
30"
21"
21"
18"
Mt. Vernon
21"
15"
18"
15"
Ave.
CREEK
12"
DRY
Edgemoor
42" WAR-INDUSTRY SEWER
18"
15"
TURNPIKE
Rd.
St.
Woodlawn
St.
12"
N

A

Figure 1

DJACENT TO DRY CREEK SANITARY SEWER DISTRICT

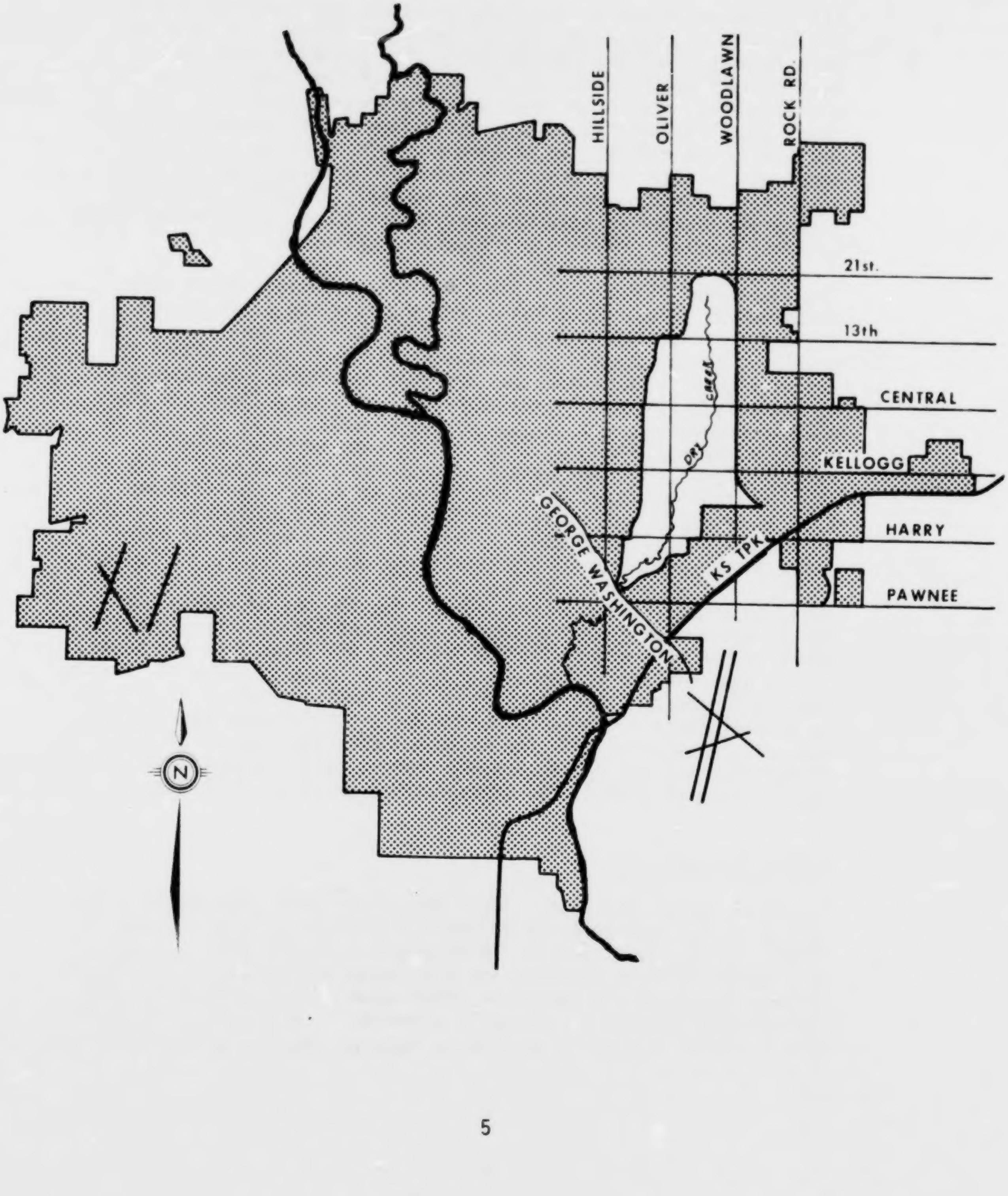

60"
48"
Grove
St.
Ave.
Douglas
13th St.
Bluff Ave.
Kellogg
Central
18"
15"
Ave.
Ave.
15"
Pinecrest Ave.
12"
DRY
15"
gemoor
Dr.
18"
15"
CREEK
18"
15"
Ave.
12"

● = WASTEWATER FLOW MONITORING STATIONS

B

LOCATION OF DRY CREEK SANITARY SEWER DISTRICT

Figure 2


HILLSIDE
OLIVER
WOODLAWN
ROCK RD.
21st.
13th
CENTRAL
KELLOGG
HARRY
PAWNEE
DRY CREEK
GEORGE WASHINGTON
KS TPK
N

Present Interceptor Conditions

All wastewater flows which originate in the Dry Creek basin enter a diversion manhole at Mt. Vernon and Bluff Street. At this manhole 70 percent of the average daily flow and 85 percent of the peak daily flow enters the existing 21-inch Dry Creek interceptor and ultimately discharges into Sanitary Sewers 12 and 23. The remaining 30 percent of average daily flow and 15 percent of peak daily flow are diverted to an extension of a 24-inch interceptor sewer which serves the eastern portion of Sanitary Sewer District 12. This 24-inch interceptor flows westerly along Mt. Vernon and ultimately discharges into Sanitary Sewers 12 and 23. The locations of these Sanitary Sewers are indicated in Figure 1.

The facilities plan and infiltration/inflow analysis which were prepared for this project found that the existing sewer system did not have sufficient capacity to transport the peak flows which developed in the district. Wastewater flow monitoring within the basin (Figure 1) indicates that the peak flow rates, due solely to sanitary waste, are approximately 3.9 million gallons per day (MGD). However, during periods of wet weather, flows increase to a rate of approximately 12.6 MGD. This rate of flow could be expected to occur on an average of once every two years. Since the flow routing capacity of the system below the diversion manhole is only 6.6 MGD, wastewater backs up to the collection system during periods of wet weather. This results in wastewater overflows in the basements of some basin residences.

Based on a cost-effective analysis of the options of removing 6 MGD of extraneous flows by rehabilitation of the Dry Creek Basin sewer system or transporting and treating all flows from the basin, it was determined that increasing the pipe capacity below Mt. Vernon and Bluff and rerouting these flows from Sanitary Sewers 12 and 23 to another sewer referred to as the War Industry Sewer was the most cost-effective solution. The estimated cost for removal of 6 MGD of extraneous flows was $1,759,000 compared with an estimated total capital cost of $755,090 to transport and treat all 12.6 MGD.

Public Participation

To better define the major issues associated with this project, EPA held a public meeting early in the EIS planning process (October 4, 1978), in the planning area. Approximately 75 citizens attended. As a result of this meeting, the EIS impact analysis was re-directed in some cases, and increased in other cases, in an attempt to make the EIS more responsive to public concerns. On August 1, 1979 EPA held a public hearing in Wichita to receive comments on the draft EIS.

CHAPTER II: ENVIRONMENTAL SETTING

Climate

Wichita's location near the geographic center of the United States results in a generally modified continental climate. Warm, moist air masses originating in the Gulf of Mexico predominate in the summer, while cold, dry artic air masses predominate in the winter. Alternate passage and overrunning of air masses in all seasons create a local climate subject to abrupt changes.

The mean annual precipitation as measured at Wichita's Mid-Continental Airport is 24.47 inches (NOAA 1963-1977). Most of the precipitation occurs as rain during the spring. Typical monthly rainfall distribution is shown in Figure 3.

Summers are usually hot with southerly winds, while winters are relatively mild. Snow flurries are common but extended periods of snow cover are uncommon. Monthly temperature distribution for the years 1963-1977 is shown in Figure 4.

Topography

The topography of the study area is level to rolling. Altitudes range from a high of 1400 feet in the northeast to a low of 1280 feet in the south.

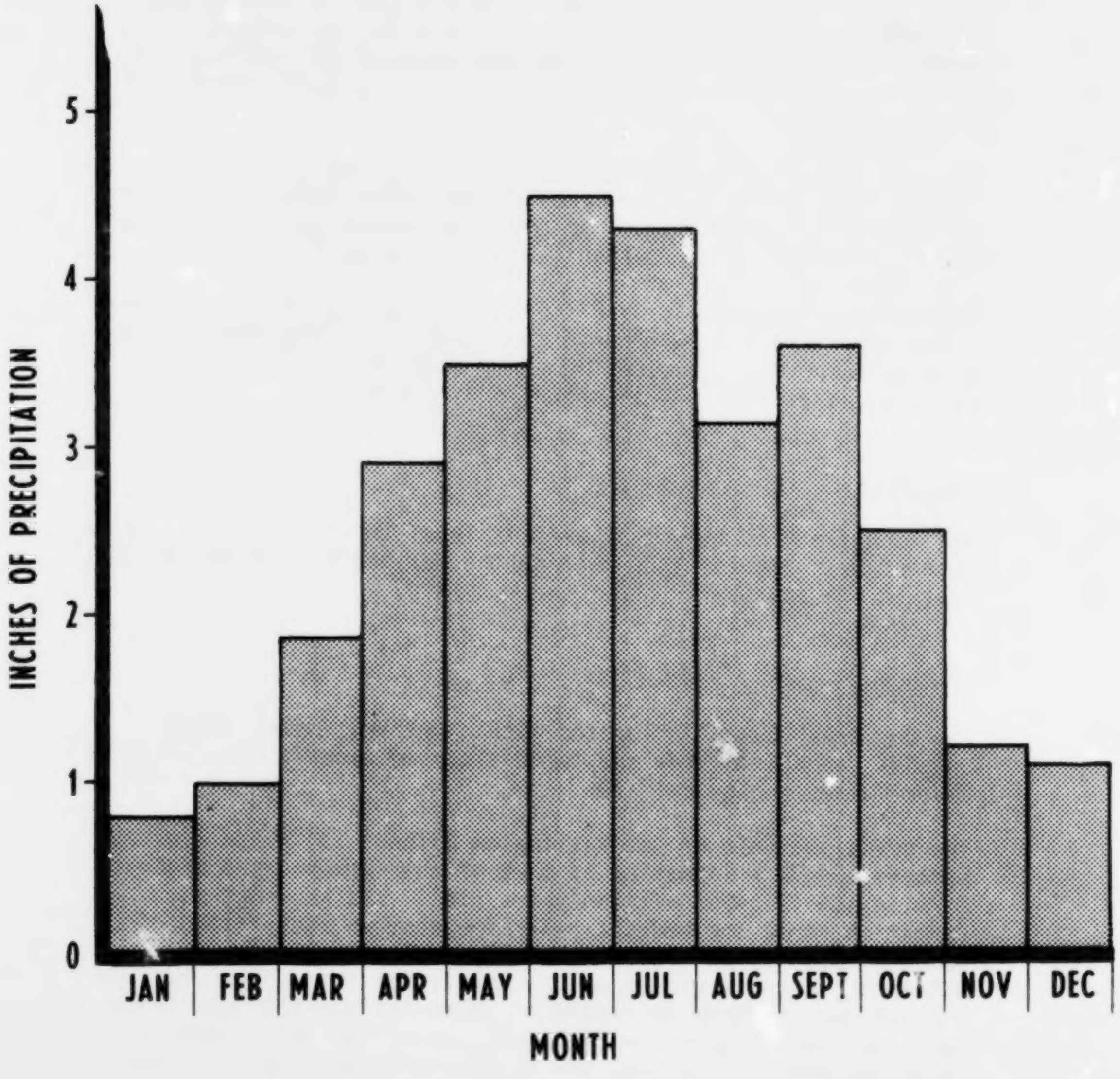
Geology

The Dry Creek Basin is located within the Wellington Shale Uplands geological area and immediately adjacent to the Arkansas River Valley geological area.

The principal unit of the Wellington Uplands is the Wellington Formation. This formation is part of the summer group of Lower Permian age (250-300 million years old). The Wellington Formation forms the bedrock under the eastern four-fifths of Sedgwick County, an area which includes the Dry Creek Basin. Within the county, depths of the Wellington Formation vary from surface outcroppings to depths of approximately 550 feet below land surface. Within the Dry Creek Basin, the Wellington Formation does not outcrop and is generally more than 30 feet below land surface.

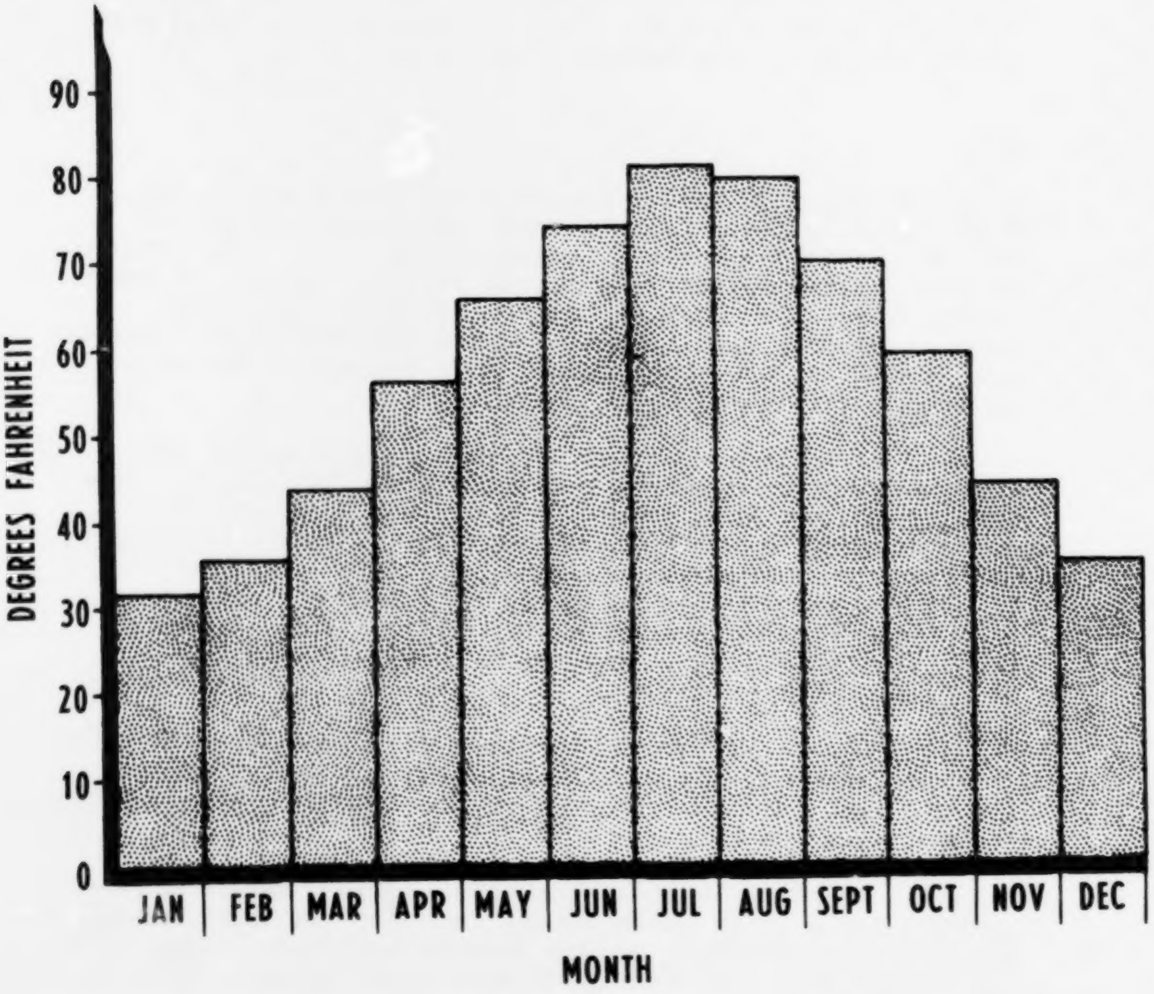
MONTHLY RAINFALL DISTRIBUTION

Figure 3



MONTHLY TEMPERATURE DISTRIBUTION

Figure 4



The Wellington Formation is chiefly composed of calcareous gray and blue group shales. Additionally, thin beds or layers of impure limestone, gypsum, and salts are present in some areas. Solution of these beds and physical weathering of the shales have generally caused gentle undulating topography of the study area.

Within the Dry Creek Basin the Wellington Formation is principally overlain with calcareous silts, and clay with scattered lenses of sandy silts. The silts and clays are primarily loessial (wind-deposited) and secondarily the result of weathering and subsequent deposition of the Wellington Formation. The occasional sandy silt and clay lenses are the result of minor historic variations in this area within the Arkansas River Valley.

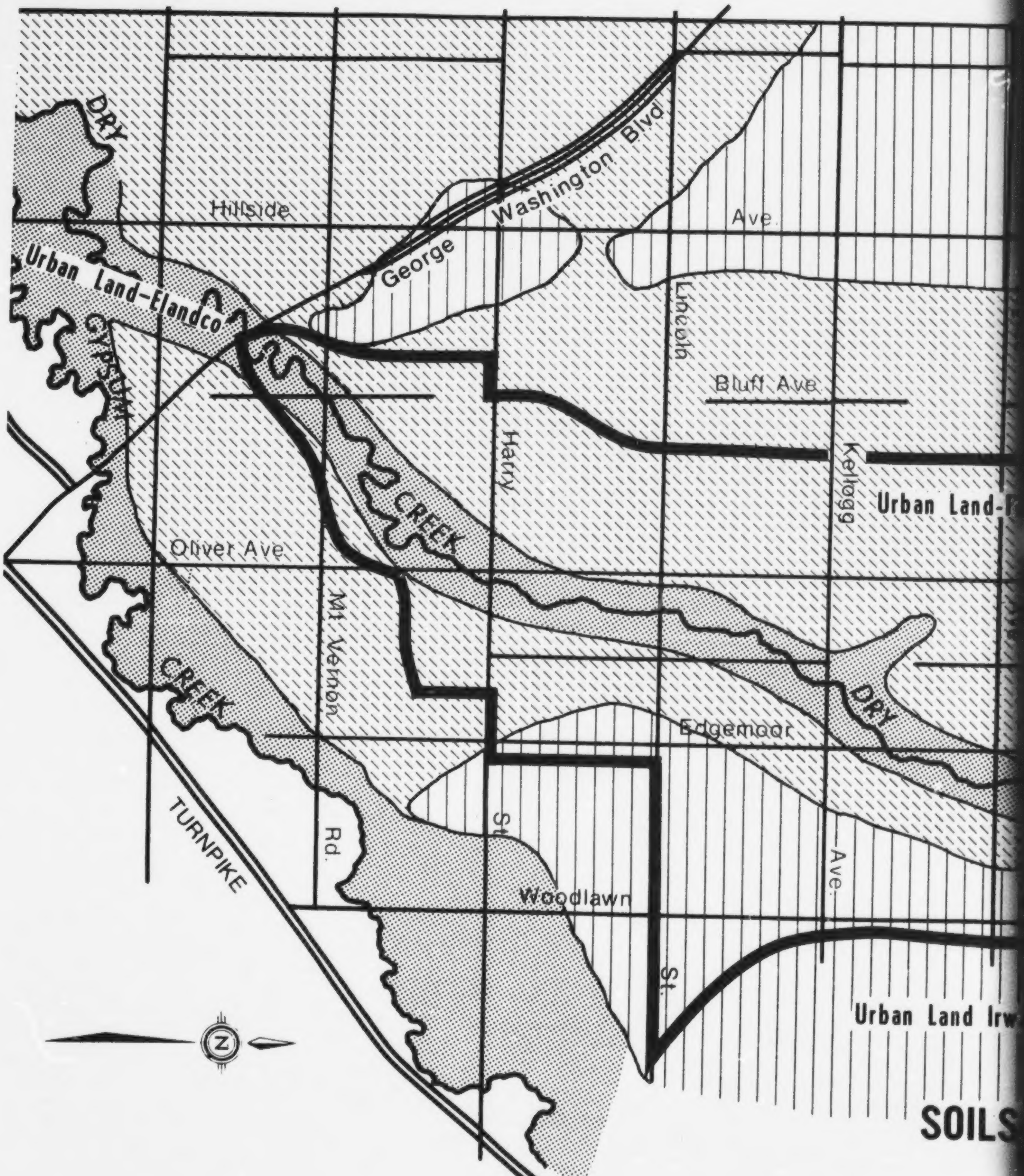
Soil

Within the Dry Creek Basin, three soil units are present: The Urban land-Elandco Complex, the Urban land-Farnum Complex, and the Urban land-Irwin-Rosehill Complex (Penner 1978). The location and areal extent of these units can be seen in Figure 5. Although general series characteristics can be applied to basin soils, urban construction activities such as the placement of fill material have resulted in numerous locations where the general series soil characteristics do not apply.

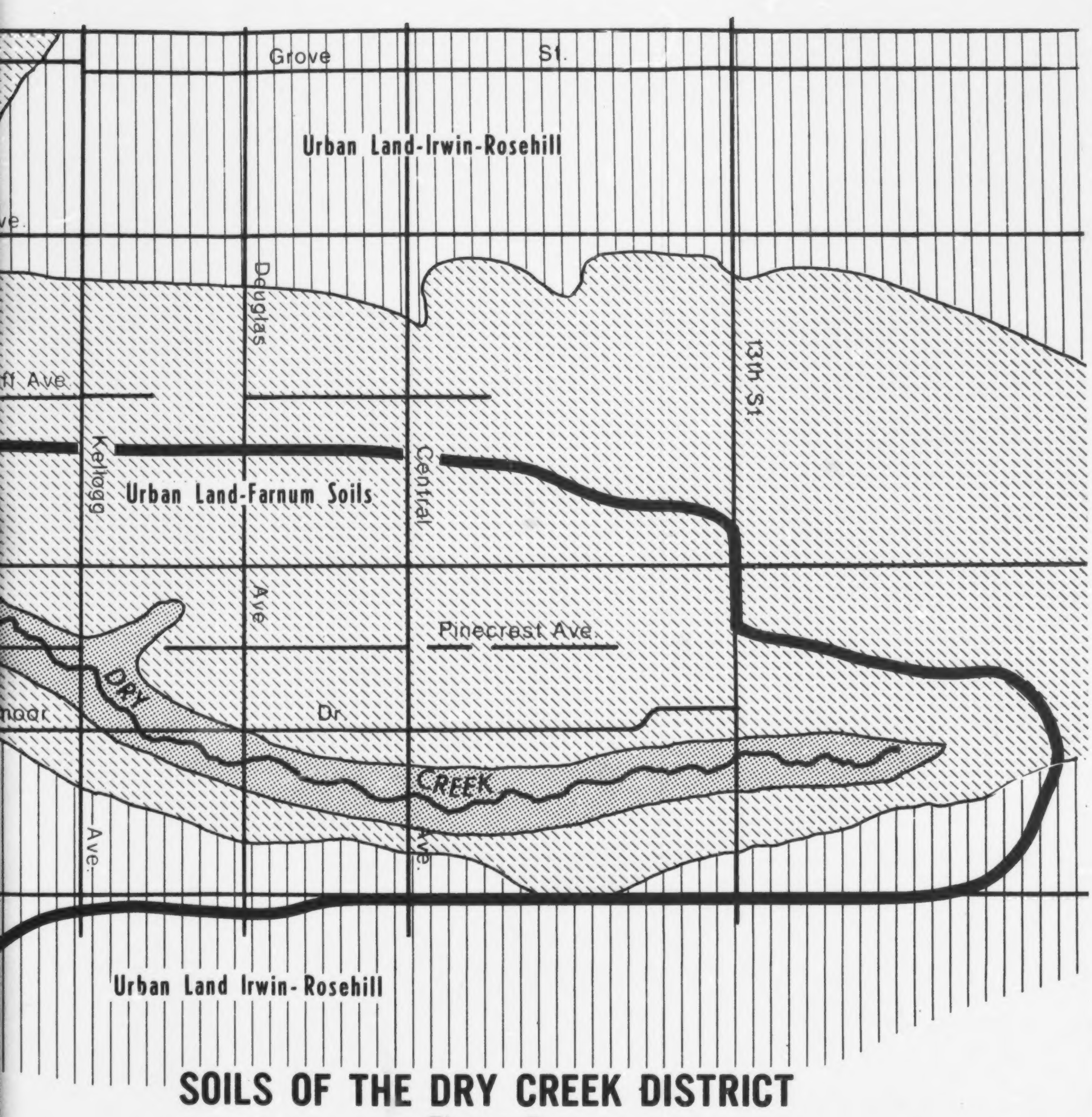
Soils of the Urban land-Elandco Complex are the principal soils within the impact area, and are located in the floodplains. These soils are silty clay loams of fine particle size and are the result of alluvial processes. Although located within floodplains, these soils are well-drained, permeable, and have slow runoff characteristics. The erosion factor of 0.37-0.43 places these soils in the moderate erosion potential range. However, due to their permeability and drainage, annual sediment yield from both sheet and gully erosion is low.

The Urban land-Farnum Complex are upland soils of level to slightly sloping topography. These soils are sandy clay loam of moderate particle size. Storm water runoff is slow to medium and erodibility is low to moderate for these soils.

The Urban land-Irwin-Rosehill Complex are fine-grained silty clays probably derived from weathering and erosion of the local bedrock, the Wellington Formation, and the deposition of loess. These soils are located on upland slopes of three to eight percent. Soils of


DRY
Hillside
George Washington Blvd
Ave.
Urban Land-Elandco
GYPSUM
Lincoln
Bluff Ave.
Harry
Kellogg
Urban Land-
CREEK
Oliver Ave
Mt Vernon
Rd.
CREEK
DRY
Edgemoor
St.
Woodlawn
St.
Ave.
TURNPIKE
Urban Land Irw
Z
SOILS

A


Grove St.
Urban Land-Irwin-Rosehill
ve.
Douglas
13th St
ff Ave.
Kellogg
Central
Urban Land-Farnum Soils
Ave
Pinecrest Ave.
DRY
moor
Dr
CREEK
Ave.
Ave.
Urban Land Irwin-Rosehill

SOILS OF THE DRY CREEK DISTRICT
Figure 5

B

this complex exhibit moderate to rapid storm water runoff depending on the land slope. Similar to the Urban land-Elandco Complex, these soils are moderately erodible with an erosion factor of 0.37 to 0.43.

Groundwater: Quantity and Quality

Within the Dry Creek Basin static groundwater elevation is generally encountered at depths greater than 25 feet below land surface. The water table level generally exists at the interface of the soil overburden and the Wellington Formation. Movement along this interface is southwesterly toward the alluvial material of the Arkansas River. The quantity of water at this interface is low. Waters taken from wells which penetrate the Wellington Formation tend to be quite hard with a high sulfate concentration. Within the impact area, a series of test borings failed to encounter a static groundwater table at depths of 30 feet below land surface. Some seepage water which was encountered in test borings was probably transmitted through thin sand lenses with greater permeability than the surrounding soils (Allied Laboratories 1978).

Surface Water Quantity and Quality

Streamflow characteristics of Dry Creek are the result of the interaction of three important parameters: Geological conditions (depth to groundwater, soil type), climatic conditions (seasonal rainfall distribution, rainfall intensity), and land use characteristics. Local and regional geological conditions affect the flow of Dry Creek by determining the base flow (flow which results from groundwater entering the creek). Since depth to groundwater in the Dry Creek area is in excess of 25 feet, the base flow of Dry Creek is nearly nonexistent. Information developed by the Kansas Water Resources Board (Furness, Burns and Busby 1966) indicates base flow for the area is about 0.0075 cubic feet per second (cfs) per square mile of drainage basin. For Dry Creek this would amount to about 0.0375 cfs, or the amount of water consumed per day by 70 households.

Two partial-record streamflow and rainfall recording stations are located within the Dry Creek Basin (Figure 6). The U.S. Geological Survey Station 07144330 at Lincoln Street has been operated since March 1964, and the City of Wichita Station 07144340 at Pawnee Avenue has been in operation since March 1971.

The urbanized nature of the Dry Creek Basin (approximately 30 percent or 1.5 square miles of impervious surface according to Peek and Jordan 1978), channel modifications, and storm sewer construction have contributed to peak period of streamflow occurring early in a storm water runoff event. Additionally, these factors have contributed to increases in both volume and peak runoff rate. The rapid response of the Dry Creek drainage system to intensive rainfall has resulted in many areas having drainage problems or being within the 100-year flood hazard area (Figure 6).

Information on historic trends in surface water quality in the Dry Creek Basin is not available. Data collected on September 14, 1978, from Dry Creek represents the only known information on surface water quality (Table I). While this information is not complete enough to make definitive comments on water quality, the elevated levels of plant nutrients (nitrates and orthophosphates), turbidity, and depressed levels of dissolved oxygen (DO) indicate that Dry Creek is subject to some type of pollution loading. Considering the relationship between rainfall runoff, streamflow, and water quality data, the pollution source is probably due to urban nonpoint runoff.

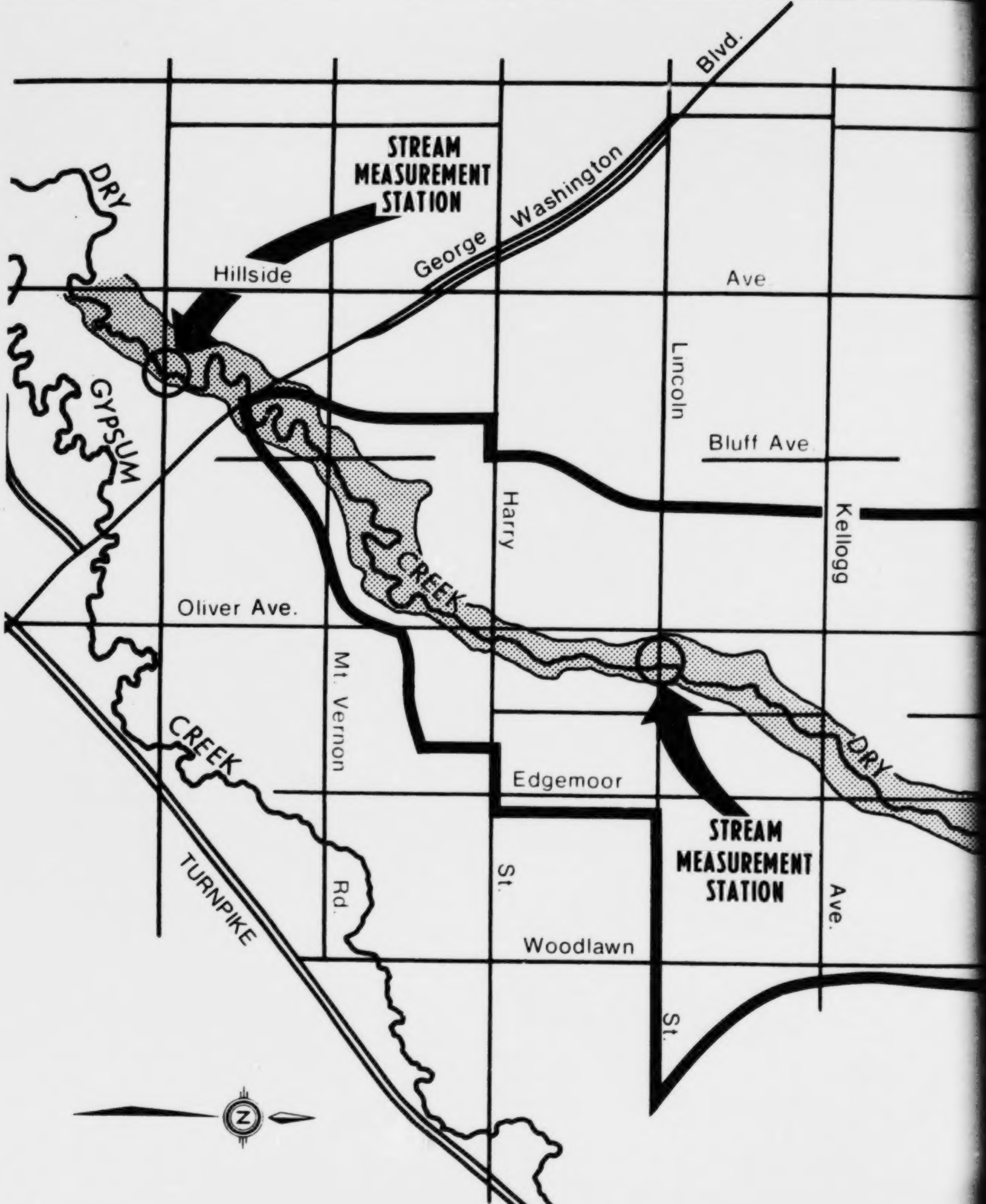
Air Quality

Air quality data for the Dry Creek Basin are available from the air quality monitoring station located adjacent to the basin at Fire Station Number 11, 1845 George Washington Boulevard. Based on sampling data (Figure 7), annual mean values for three pollutants (nitrous oxides, sulfur dioxides, and particulates) during 1975, 1976, and 1977 were not in violation of air quality standards.

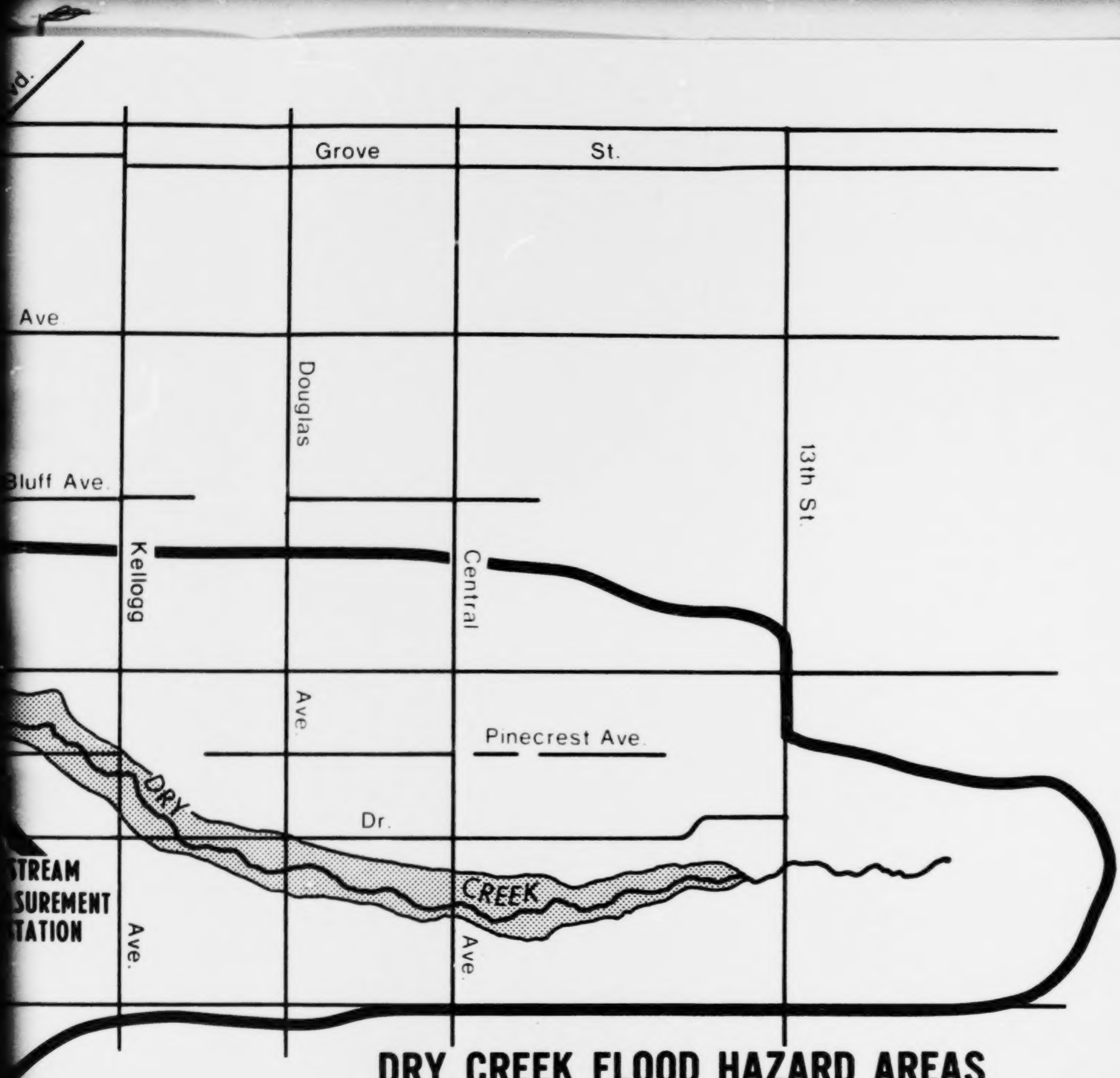
Land Use

Within the Dry Creek Basin, the principal land use is residential consisting of single or multi-family dwelling units. A house count, based on aerial photos at a scale of 1 inch = 200 feet, indicated that approximately 6,300 single family dwelling units, and 2,800 multi-family dwelling units are located within the basin. This is a density of approximately 1,860 units per square mile (Dry Creek Sanitary Sewer System Facilities Plan 1977).

Additional land use is associated with retail, commercial, and service enterprises that provide necessary services to area


STREAM MEASUREMENT STATION
STREAM MEASUREMENT STATION
DRY
DRY
CREEK
GYPSUM
CREEK
George Washington Blvd.
Hillside Ave
Bluff Ave.
Oliver Ave.
Edgemoor
Woodlawn
Lincoln St.
Harry St.
Mt. Vernon Rd.
Kellogg Ave.
TURNPIKE
N

A


vd.
Grove St.
Ave
Douglas
13th St.
Bluff Ave.
Kellogg
Central
Ave.
Pinecrest Ave.
DRY
Dr.
CREEK
TREAM
SUREMENT
TATION
Ave.
Ave.

DRY CREEK FLOOD HAZARD AREAS
AND LOCATION OF
STREAMFLOW RECORDING STATIONS
Figure 6

B

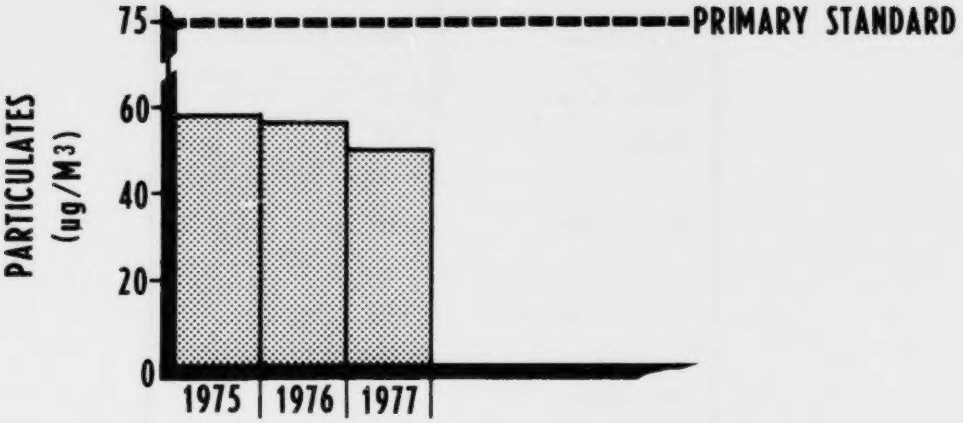
Table I: Water Quality of Dry Creek

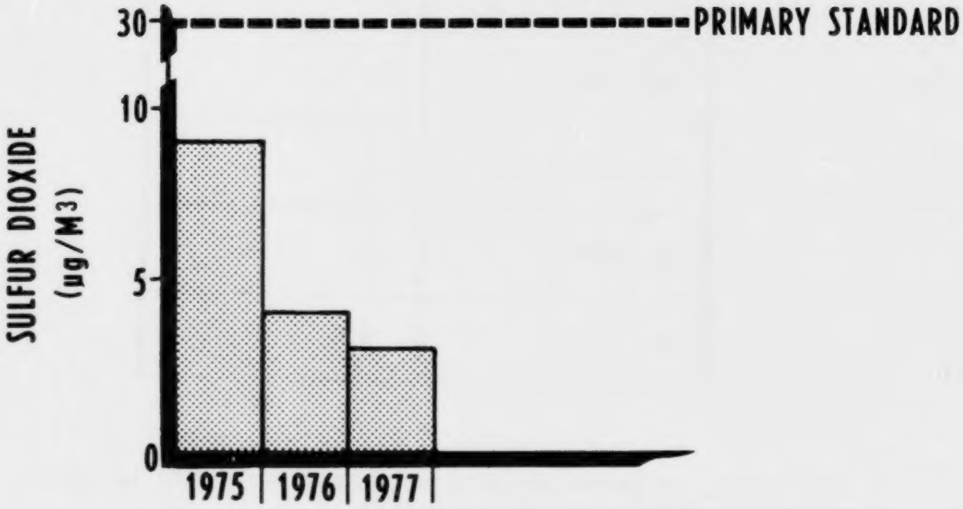
Parameter	Concentration *
Alkalinity	115
Chlorides	16
Total Hardness	110
Nitrates	6
Orth-phosphates	0.7
Sulfates	20
Dissolved Oxygen	3
Turbidity	55
pH	8.6

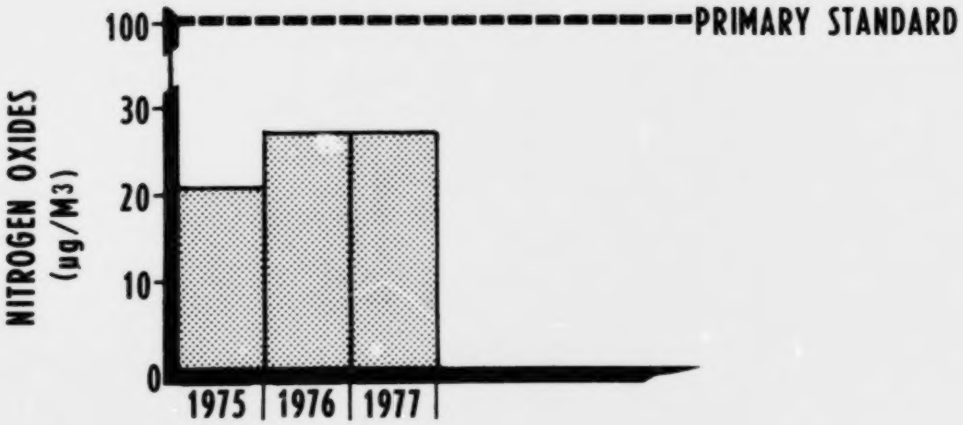
* All values in parts per million except Turbidity (Jackson Turbidity Units) and pH (pH Units).

AIR QUALITY

Figure 7







residents. These enterprises are mostly located as strip development along arterial streets. There are no areas of concentrated industrial development. This present pattern of land use is expected to continue. Internal development in all probability would not convert present residential areas to other uses, but rather would minimize urban sprawl through full utilization of the existing infrastructures (Wichita-Sedgwick County Planning Commission Personal Communication).

Population

The Dry Creek Basin had an estimated 1976 population of approximately 18,500 (Wichita-Sedgwick County Land Use Plan 1977). This figure represents about seven percent of the city's population. The basin is expected to exhibit a relatively moderate population growth rate, increasing by about eight percent to 20,050 by the year 2000. This growth is not expected to occur uniformly but rather will occur where vacant or undeveloped land parcels presently exist. The general location of these growth areas is shown in Figure 8.

Employment

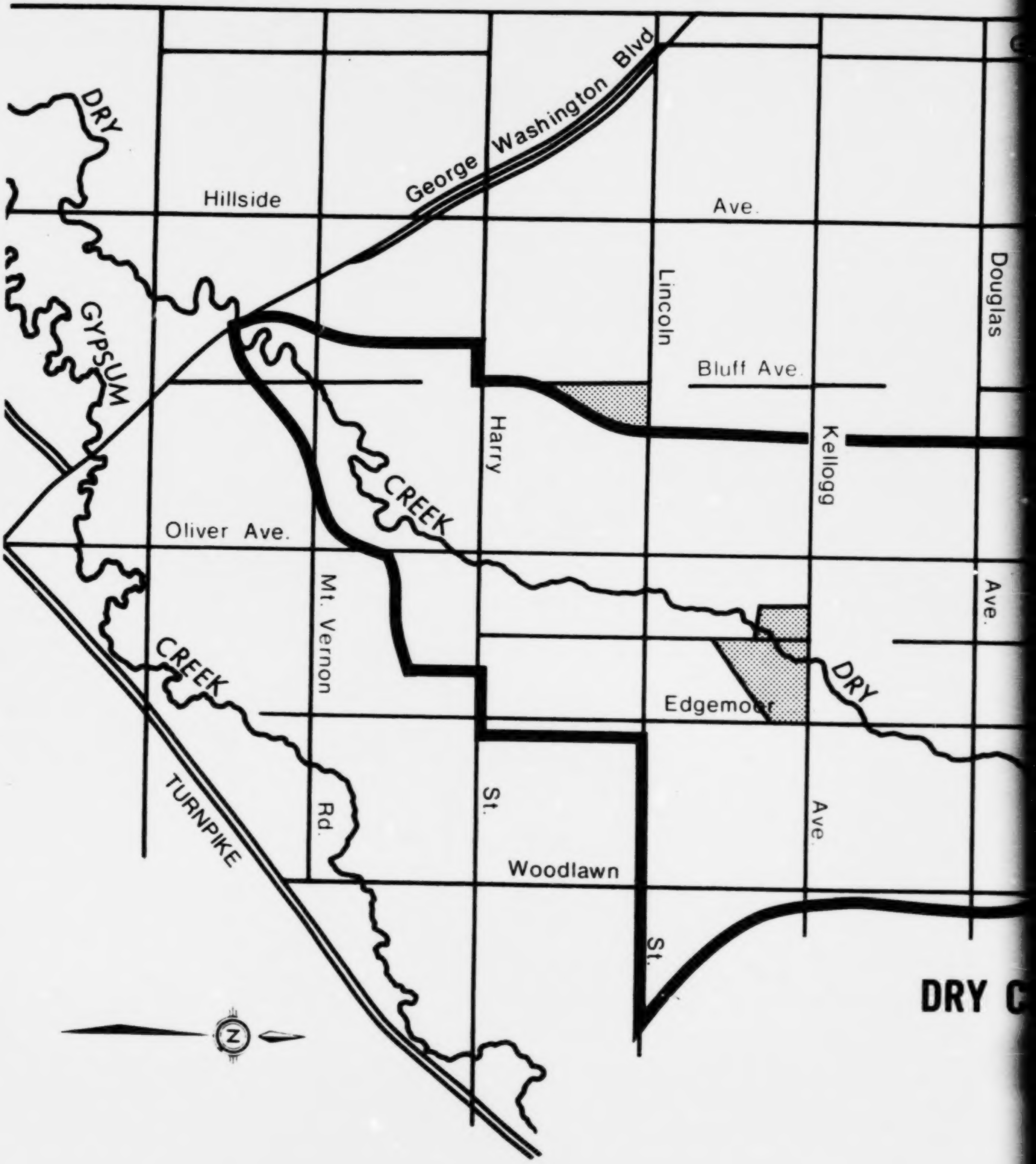
The Dry Creek Basin provides a wide diversity of employment opportunities. In 1973, approximately 4,482 job opportunities existed in the basin. This number is expected to increase to an estimated 4,963 by the year 2000 (Zonal Allocation-Land Use Plan 1977). Table II summarizes this information.

Parkland and Open Space

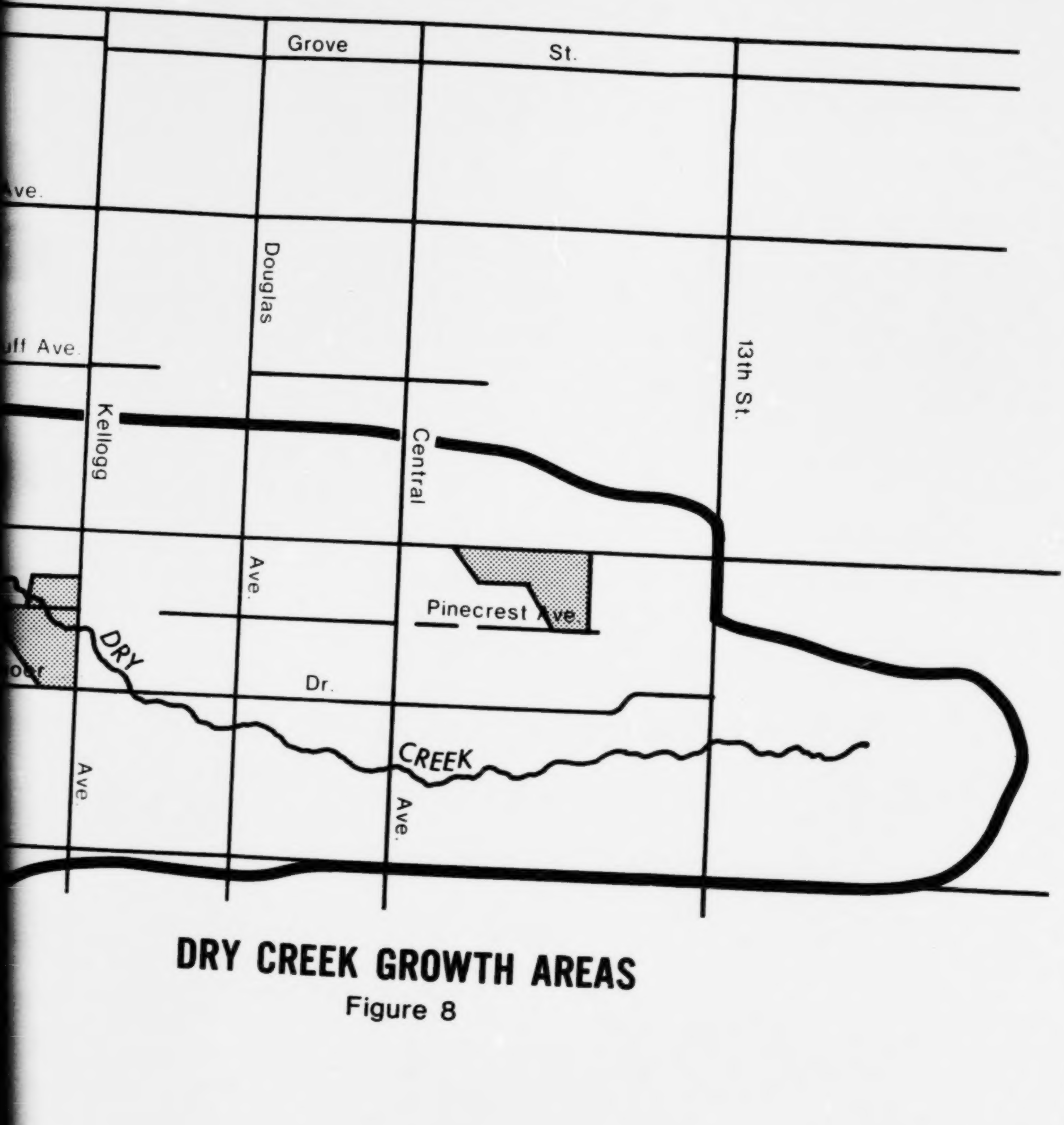
Open space opportunities within the Dry Creek Basin are provided in form of designated city parks and school playgrounds. Two parks and a golf course totaling 127.5 acres or 4 percent of the basin are maintained by the City of Wichita (Figure 9). The largest of these is L.W. Clapp Memorial Golf Course, a special use park. This area consists solely of an 18-hole golf course, situated on 90.7 acres. Edgemoor Park, a community park, is located on 25.5 acres and contains a recreation center, a lighted tennis court, ball diamond, a swimming pool, and children's play areas. Willow Park is located along the Dry Creek Drainage Way. This park encompasses 11.3 acres, is presently underdeveloped and

Table II: Employment Opportunities Within Dry Creek Basin

Employment Section	1976 Opportunities	2000 Opportunities	% Change
Retail	2040	2081	+ 2
Public or Semi-Public	1141	1406	+ 19
Service	750	925	+ 19
Industrial	281	281	0
Office	270	270	0


DRY
George Washington Blvd
Hillside
Ave.
GYPSUM
Lincoln
Douglas
Bluff Ave.
Harry
Kellogg
CREEK
Oliver Ave.
Mt. Vernon
Ave.
CREEK
Edgemoor
DRY
TURNPIKE
Rd.
St.
Ave.
Woodlawn
St.
DRY C
N

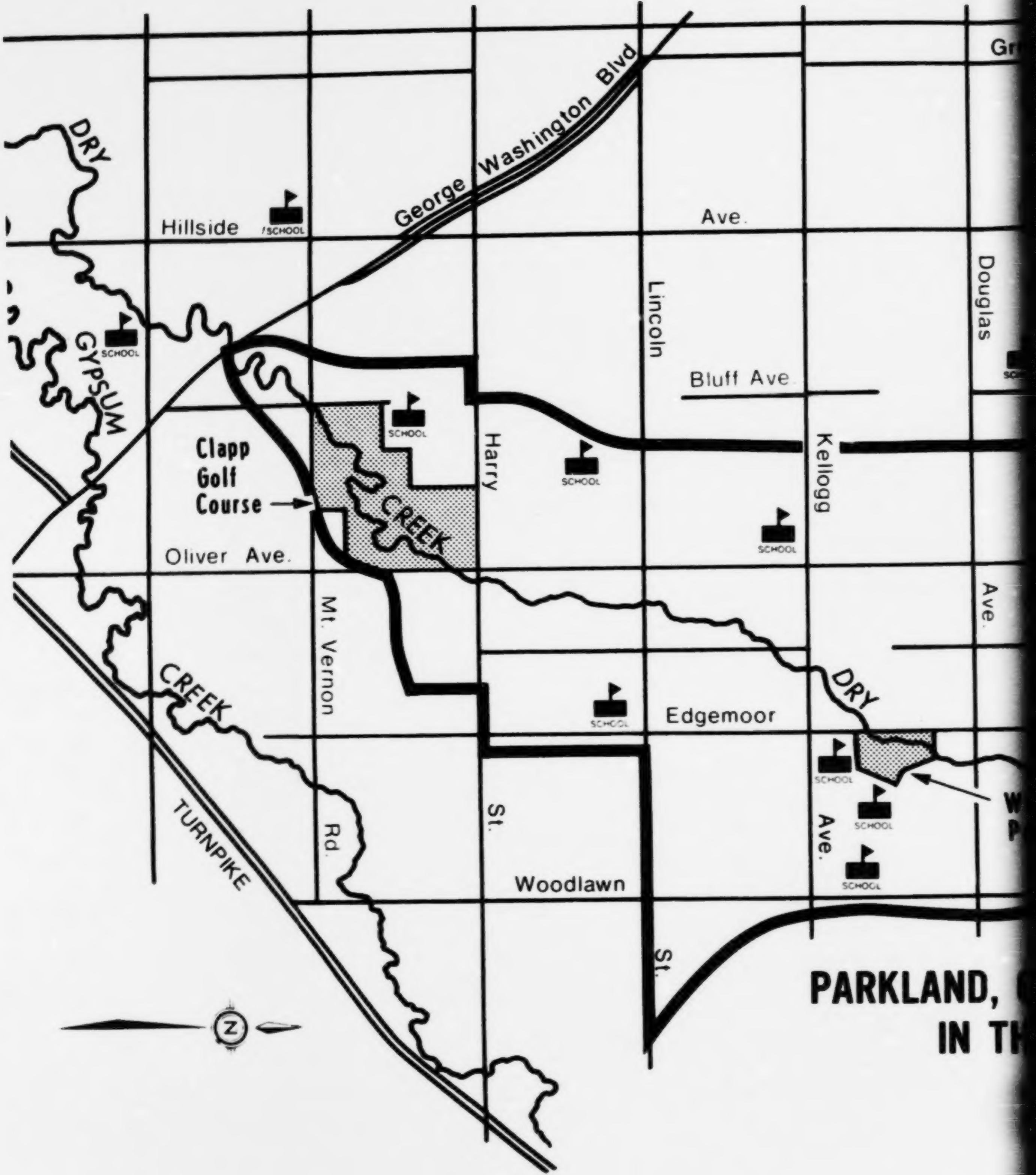
A


Grove
St.
Ave.
Douglas
uff Ave.
13th St.
Kellogg
Central
Ave.
Pinecrest Ave.
DRY
oor
Dr.
CREEK
Ave.
Ave.

DRY CREEK GROWTH AREAS

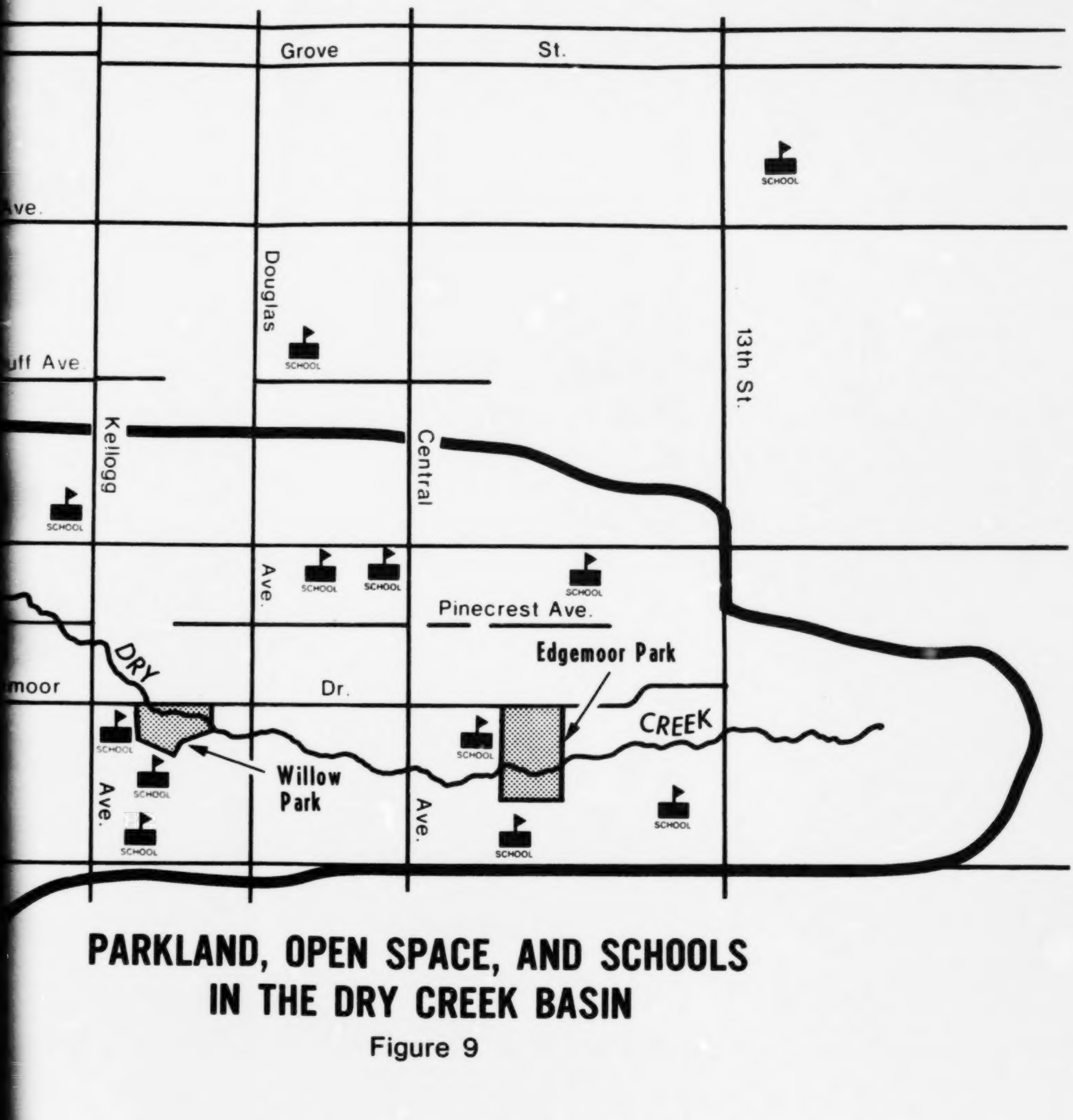
Figure 8

B


Gr
DRY
George Washington Blvd
Hillside
SCHOOL
Ave.
Lincoln
Douglas
GYPSUM
SCHOOL
Bluff Ave.
SCHOOL
Clapp
Golf
Course
SCHOOL
Harry
Kellogg
CREEK
SCHOOL
SCHOOL
Oliver Ave.
Ave.
Mt. Vernon
DRY
CREEK
SCHOOL
Edgemoor
SCHOOL
SCHOOL
W
P
Rd.
St.
Ave.
TURNPIKE
Woodlawn
SCHOOL
St.
N

PARKLAND,
IN TH

A


Grove
St.
Ave.
SCHOOL
Douglas
uff Ave.
SCHOOL
13th St.
Kellogg
Central
SCHOOL
Ave.
SCHOOL
SCHOOL
SCHOOL
Pinecrest Ave.
DRY
Edgemoor Park
moor
Dr.
CREEK
SCHOOL
SCHOOL
SCHOOL
Willow
Park
Ave.
SCHOOL
Ave.
SCHOOL
SCHOOL

PARKLAND, OPEN SPACE, AND SCHOOLS IN THE DRY CREEK BASIN

Figure 9

B

serves primarily as a local green area.

City schools within the basin (Figure 9) also provide opportunities for recreation by local residents in the form of playground areas, and athletic fields.

Public Services

Both public and privately owned utilities are provided to basin residents. Public utilities include both potable water and wastewater services, both of which are provided by the City of Wichita. Gas and electricity are supplied by the Kansas Gas and Electric Company and telephone service is provided by the Southwestern Bell Telephone Company.

Fire and police protection are provided by the City of Wichita. Two of the city's 16 fire stations are located within or immediately adjacent to the Dry Creek Basin (Figure 10). Station Number 9, located at 4706 East Kellogg, has both pumping and aerial capabilities, as does Station Number 11, located at 1845 George Washington. Station Number 11 also serves as the rescue unit base station for Fire District 3.

Two hospitals, the U.S. Veterans Administration Hospital and St. Joseph's Hospital, are located either within or adjacent to the Dry Creek Basin (Figure 10).

Educational services are provided to the basin at both the primary and secondary levels. The locations of schools are shown in Figure 9. Religious services are provided by churches of many denominations. Locations of these churches are presented in Figure 10.

The Dry Creek Basin is provided with a surface transportation network in the form of expressways, arterial streets, collection streets, and public mass transit routes. The location of these transportation network facilities and mass transit routes are shown in Figure 11.

Cultural Resources

There are no known historic sites existing or proposed for listing in the Federal Register within the Dry Creek Basin (Kansas State

Historic Preservation letter of March 10, 1978). However, a portion of the drainage basin, particularly the floodplain areas, offers a potential for archeological sites. These areas are located within a soil type, the Elandco silt loam, which apparently was favored by prehistoric residents.

Three archeological surveys have been conducted by the Office of the City Archeologist for this project. Surveys of January 4, 1978, and March 14, 1978, (Boydston 1978, A & B), were limited in scope to the route of the interceptor as originally proposed along Dry Creek and did not yield any archeological sites. A third survey was recently completed (Deel 1978) which included both a review of existing data to determine if an archeological site had been recorded from the Dry Creek Basin, and a pedestrian survey of undisturbed portion of Dry Creek. This survey and review did not result in identified sites. However, bone fragments of uncertain age and out of depositional context were noted between 9th Street and Murdock.

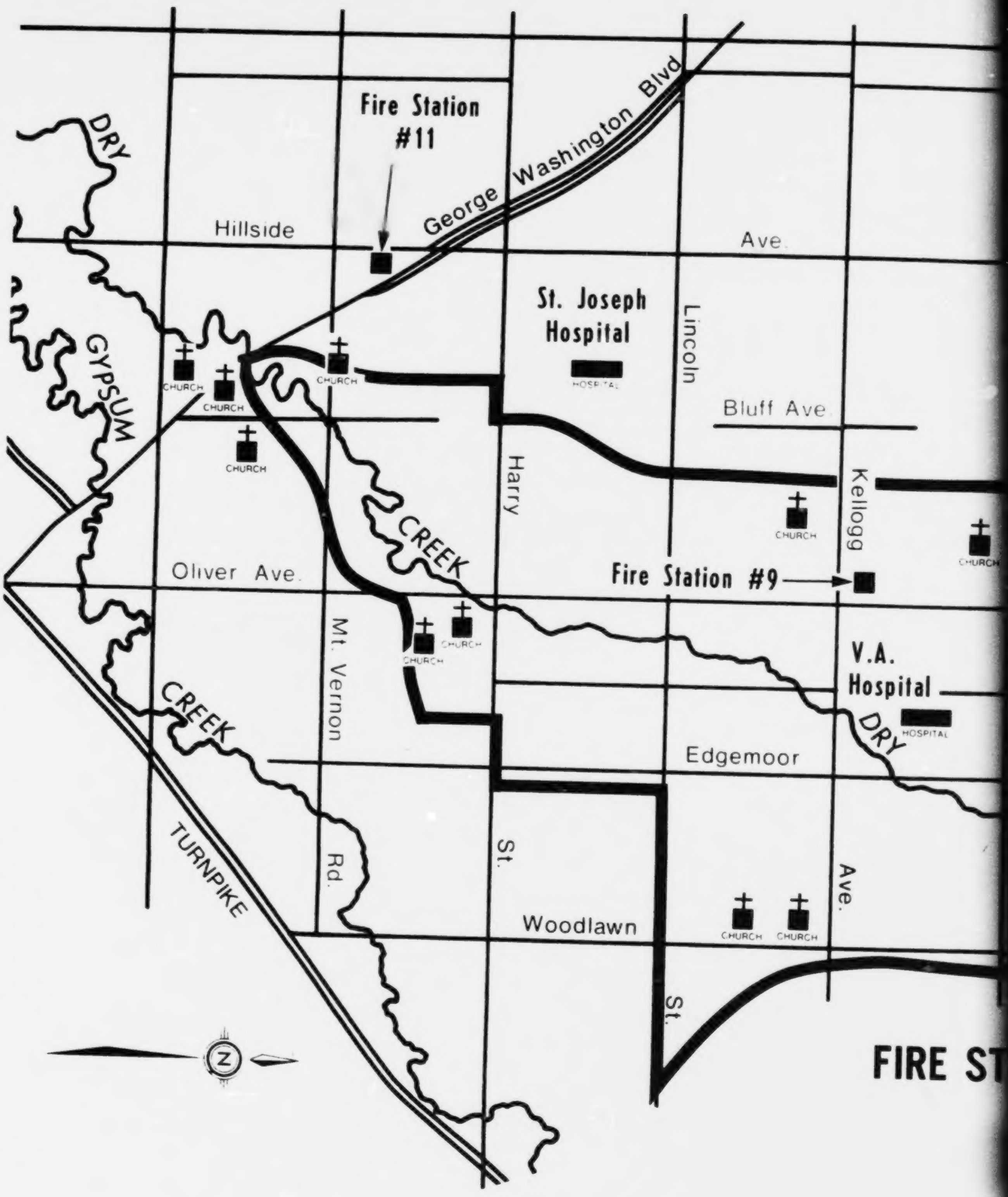
Noise

Information on noise levels within the Dry Creek Basin is extremely limited. Ambient noise levels for residents are somewhat dependent upon the distance the residences are located from arterial streets or commercial areas. Noise levels cited in the Negative Declaration for Federal Highway projects along George Washington (1974), indicate ambient noise levels of from 59 to 69 dBA-L_{10} in residential areas immediately adjacent to this street and 67 to 73 dBA-L_{10} in light commercial areas.

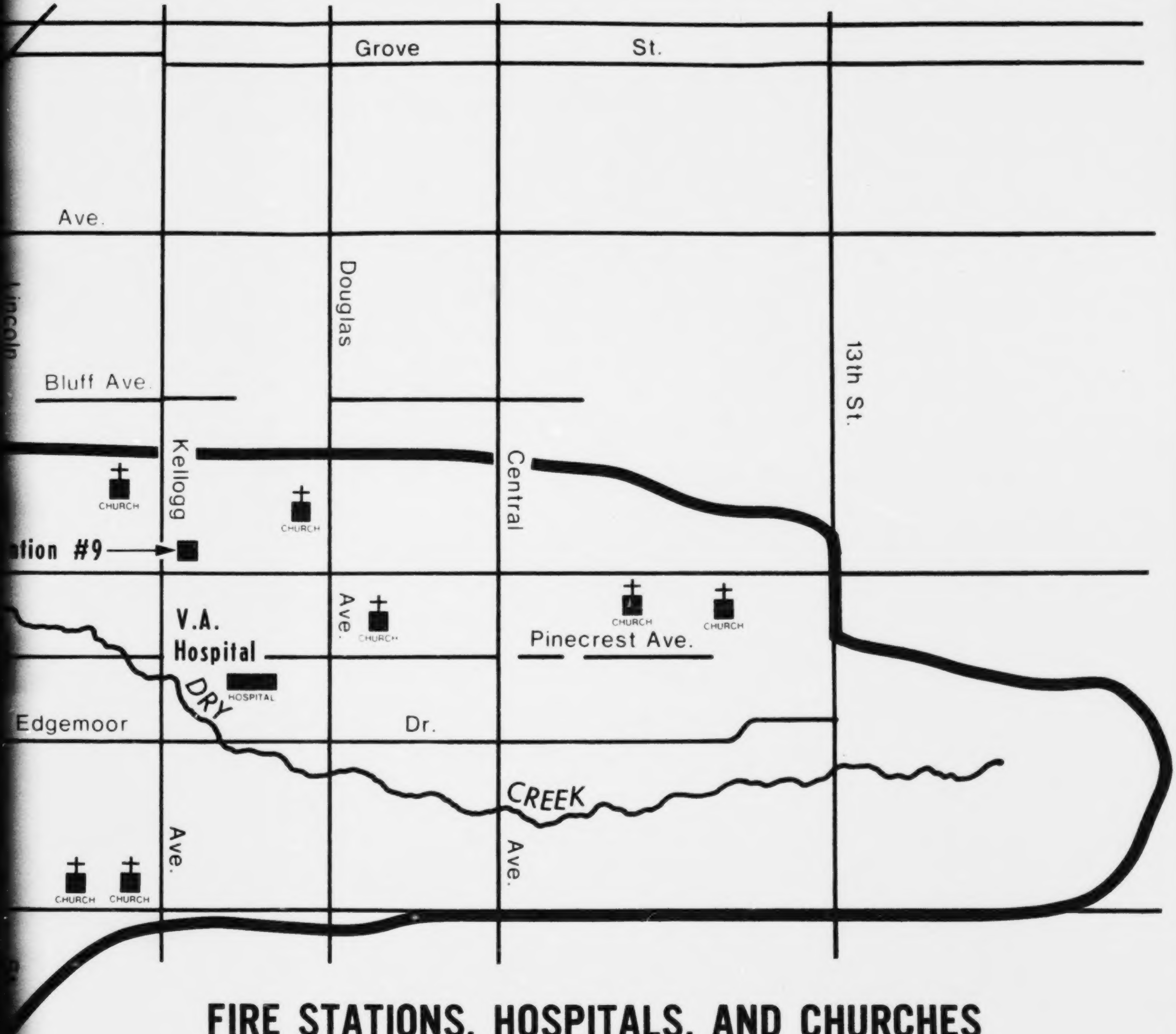
An additional noise survey was conducted for this project by the Wichita-Sedgwick County Department of Community Health on September 22, 1978. The results of this investigation indicate that equivalent noise levels (dBA-Le_q) are similar to those along George Washington. Noise survey location points and associated noise levels are presented in Figure 12.

Biota: Dry Creek Basin

The history of urbanization within the Dry Creek Basin has had a marked effect on the biota of the basin. Generally, the native vegetation of the area was eliminated as development increased. A few scattered areas of vegetation, however, remain within the


Fire Station #11
George Washington Blvd
DRY
GYPSUM
CREEK
Hillside
Ave.
St. Joseph Hospital
HOSPITAL
Lincoln
Bluff Ave.
CHURCH
CHURCH
CHURCH
CHURCH
Harry
Kellogg
CHURCH
CHURCH
CREEK
Oliver Ave.
Fire Station #9
Mt. Vernon
CHURCH
CHURCH
V.A. Hospital
HOSPITAL
DRY
CREEK
Edgemoor
TURNPIKE
Rd.
St.
Ave.
Woodlawn
CHURCH
CHURCH
St.
N
FIRE ST

A

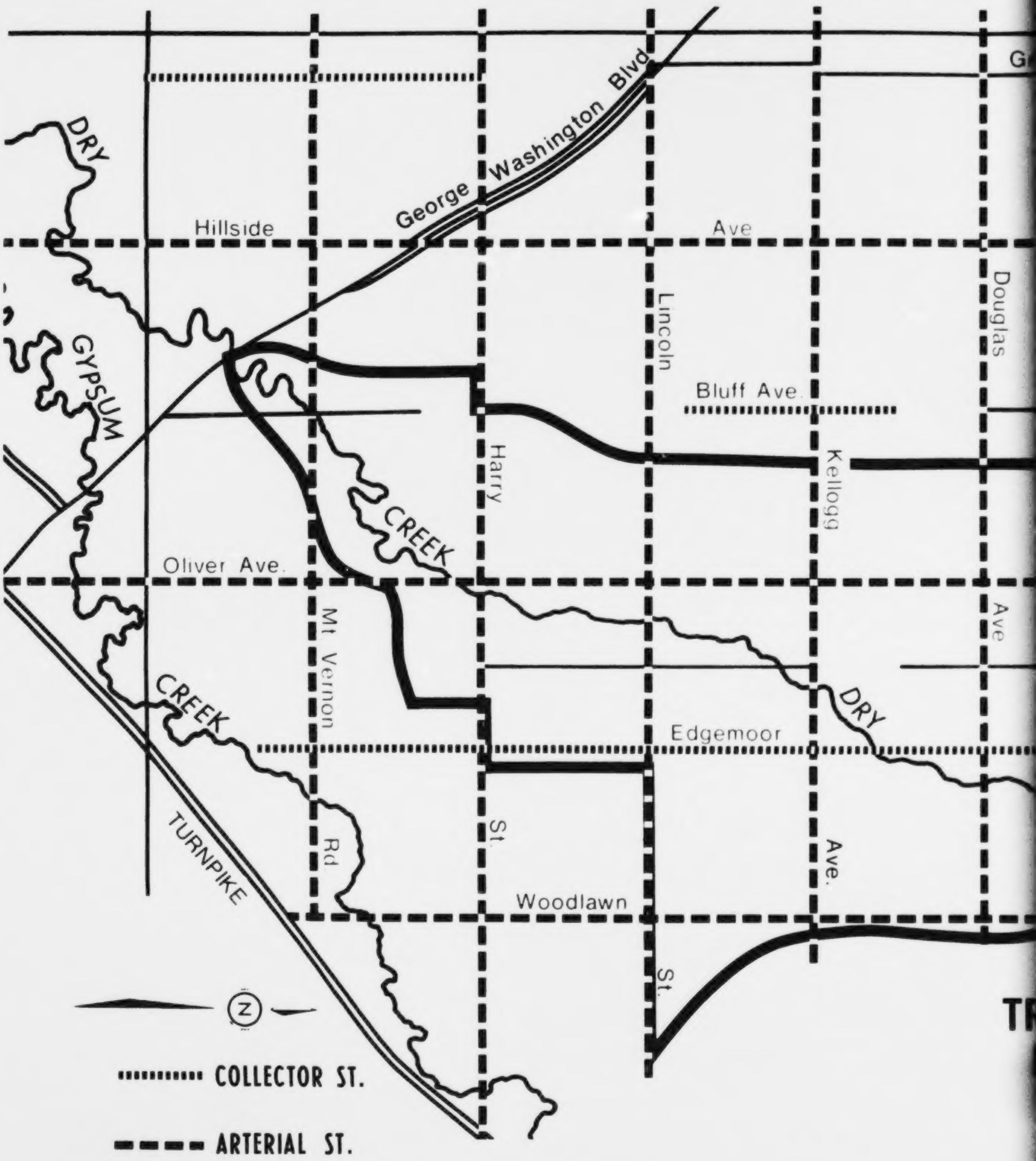


Grove St.
Ave.
Lincoln
Douglas
13th St.
Bluff Ave.
Kellogg
Central
CHURCH
CHURCH
tion #9
V.A. Hospital
Ave.
CHURCH
CHURCH
CHURCH
Pinecrest Ave.
HOSPITAL
DRY
Edgemoor
Dr.
CREEK
Ave.
Ave.
CHURCH
CHURCH

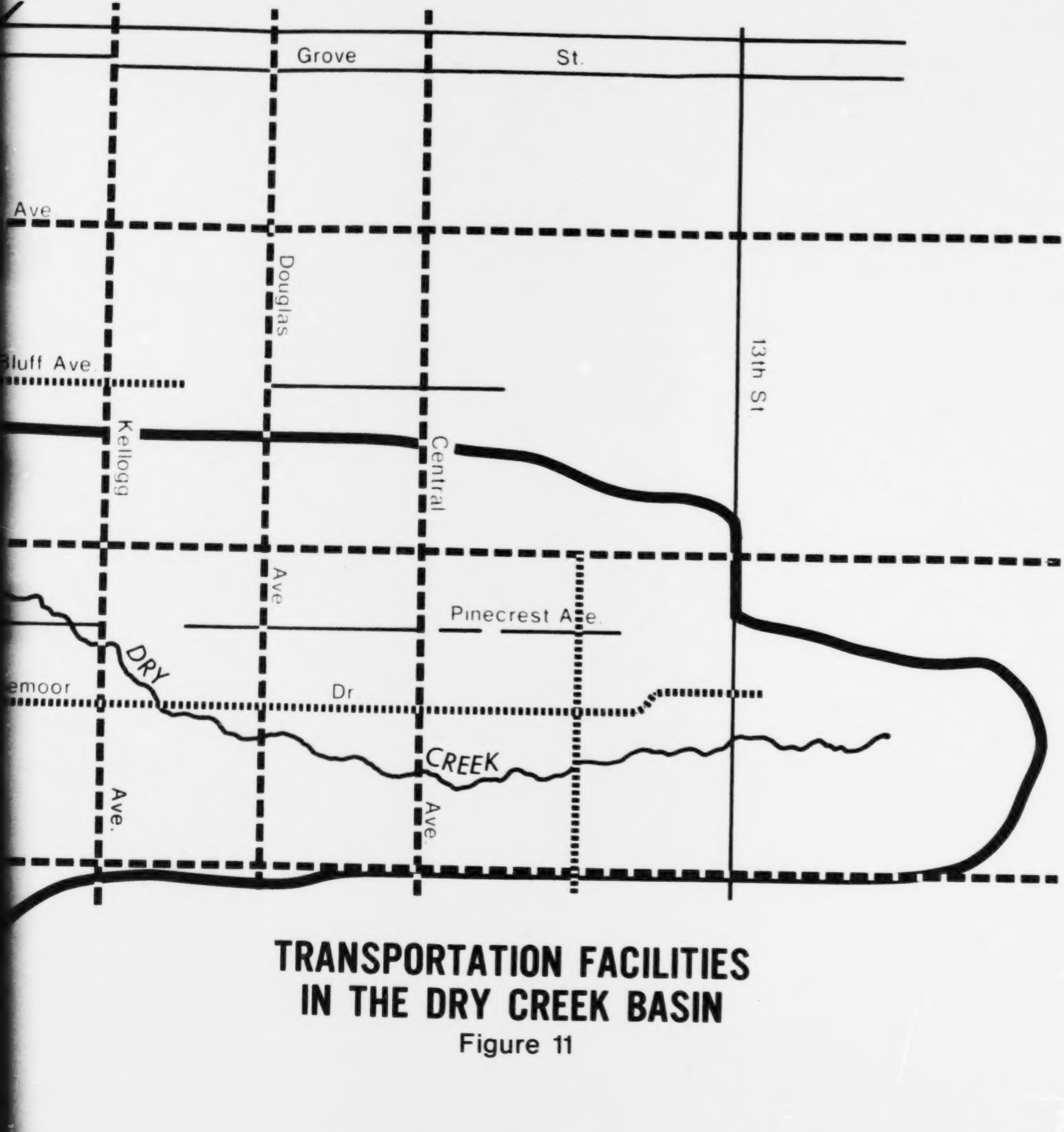
FIRE STATIONS, HOSPITALS, AND CHURCHES IN THE DRY CREEK BASIN

Figure 10

B


DRY
GYPSUM
CREEK
George Washington Blvd
Hillside
Ave
Lincoln
Douglas
Bluff Ave.
Harry
Kellogg
CREEK
Oliver Ave.
Mt Vernon
Ave
DRY
Edgemoor
Rd
St.
Ave.
Woodlawn
St.
TURNPIKE
Z
COLLECTOR ST.
ARTERIAL ST.

A

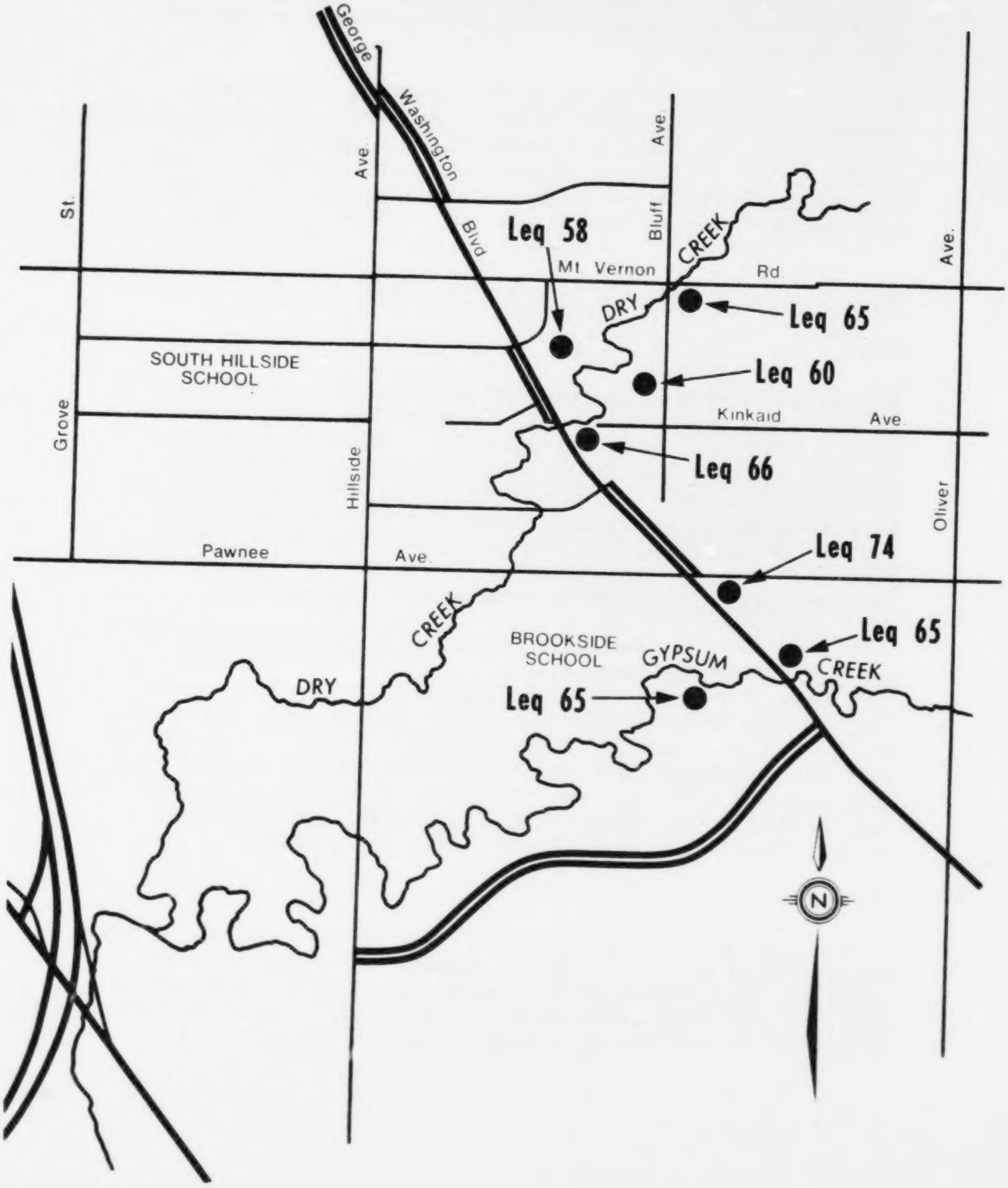

Grove St.
Ave.
Douglas Ave
Bluff Ave.
Kellogg Ave.
Central Ave.
13th St
Pinecrest Ave.
emoor Dr
DRY
CREEK

TRANSPORTATION FACILITIES
IN THE DRY CREEK BASIN
Figure 11

B

NOISE LEVELS

Figure 12


George Washington Blvd
Ave.
Hillside
Ave.
Bluff
Grove
St.
Oliver
Ave.
Mt. Vernon
Rd.
Kinkaid
Ave.
Pawnee
Ave.
SOUTH HILLSIDE SCHOOL
BROOKSIDE SCHOOL
DRY CREEK
DRY CREEK
GYPSUM CREEK
Leq 58
Leq 65
Leq 60
Leq 66
Leq 74
Leq 65
Leq 65
N

basin. Generally, these areas are located adjacent to Dry Creek where topographic features have precluded development or where vegetation has been retained to provide shade and/or aesthetic value to the area.

Wildlife resources of the basin have generally responded to changes in basin vegetation. Within the highly developed portions of the basin, the fauna have generally been reduced to those species which easily coexist in urban areas. Typical species include such birds as; blue jays, starlings, robins, and house sparrows, and mammals such as rabbits, squirrels, and mice.

Biota: Dry Creek Channel Primary Issue Area

Flora

The principal area of remaining riparian habitat in the basin is an area along Dry Creek from the intersection of Mt. Vernon and Bluff to George Washington (Figure 13). Within the woodland, both species distribution and number of species are sporadic. This condition results from the actions of local landowners who have modified the woodland by converting riparian habitat to lawn or, in one case, have modified the habitat by realigning a section of the Dry Creek Channel. Table III presents information that indicates the degree of unevenness in the woodland.

Within the area delineated in Figure 13, a detailed inventory and analysis of the vegetation was conducted (Distler 1978). This area of riparian woodland consists of 9.0 to 10.0 acres (10.0 if background planting of exotic species which are contiguous with native vegetation is included). A total of 38 species of trees and shrubs have been identified from the riparian boundary (See Appendix I for species list). Of the 38 species encountered, four species: Elm, osage orange, cottonwood, and hackberry, constitute approximately 80 percent of the total number.

Fauna

Little detailed information is available on the fauna of the Dry Creek Channel area. Information appears to be limited to an inventory conducted in areas of potential primary impact and 23 years of bird observation by Mrs. John Wherry, a local resident and member of the Wichita Audubon Society.

WOODLAND HABITAT OF PRIMARY IMPACT AREA

Figure 13

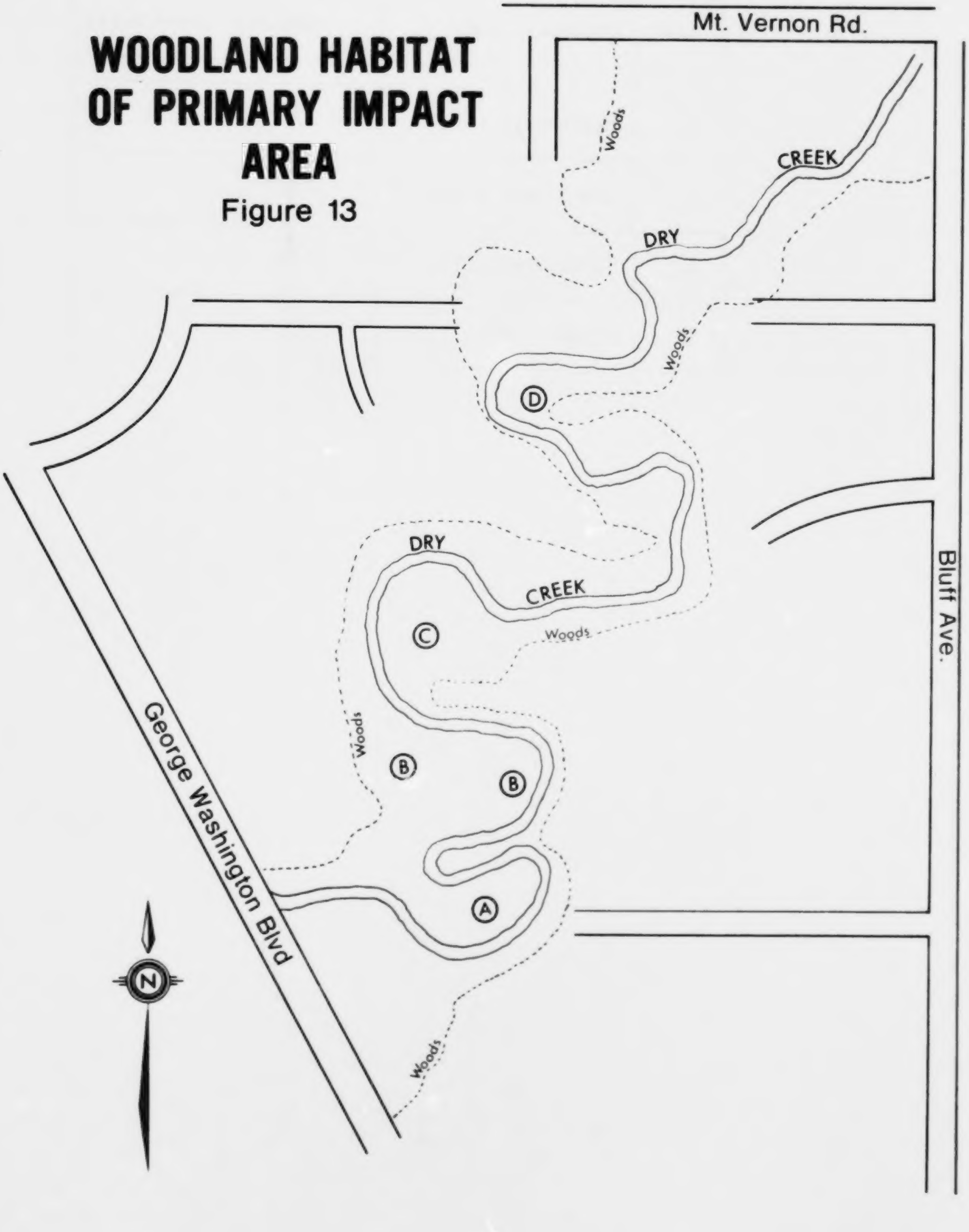

Mt. Vernon Rd.
Woods
CREEK
DRY
Woods
D
DRY
CREEK
Woods
C
Bluff Ave.
Woods
B
B
A
George Washington Blvd
N
Woods

Table III: Woodland Densities Along Dry Creek Channel

Area	Dominant Trees	Density (Trees/Acre)
A	Hackberry, Elm	277
B	Elm, Osage Orange	139
C	Cottonwood, Elm	228
D	Osage Orange, Elm	218

The flow regime of Dry Creek, oscillating between periods of no-flow and flooding conditions and the small size of the stream are not conducive to the development of large or diverse fish fauna. Limited collections from the Dry Creek Channel in the potential impact area resulted in the confirmed presence of three species: Green sunfish, red shiner, and black bullhead. A fourth species, the fathead minnow, which commonly occurs in prairie streams which are subject to periodical drought conditions may also exist in the project area.

In regard to reptiles and amphibians, only three species of frogs were encountered during the 1978 inventory. The area, however, offers suitable habitat for a well-mixed community. Appendix I contains a list of known and expected reptiles and amphibian species for this area.

The mammalian fauna of Dry Creek are typical of what would be encountered in urban woodland areas of Kansas. Six species have been identified by sight or track: The eastern cottontail rabbit, the fox squirrel, the muskrat, the opossum, the raccoon, and the striped skunk. All of these species are typical of urban or urban-fringe areas. Additionally, the area contains suitable food resources, nesting areas, and escape cover for other migrant or transient species. Appendix I contains a list of known or expected species.

The area identified in Figure 13 supports what may be the most diverse bird fauna within the Metro-Wichita area. The blend of ecotypes i.e., open lawns, backyard plantings of exotic trees and shrubs, riparian woodland, and stream pools results in a wide range of ecological niches and is conducive to a diversity of fauna. A total of 102 species have been recorded in this area and suitable habitat exists for an additional 37 species. Although many of the 102 species have not been sighted in recent years, many exotic species or migratory transients have been recognized and the area does provide nesting requirements for approximately 57 species. As with other segments of the fauna, urban-fringe species are most commonly encountered. Appendix I contains a list of species known or expected to occur in the basin.

CHAPTER III: ALTERNATIVES

Introduction

When any project or improvement plan is under consideration, there are usually numerous alternatives which can be employed to achieve the desired goal. However, many of the possible alternatives are quickly proven unfeasible because of technical, environmental, or monetary restaints.

Dry Creek Interceptor Alternative

The Dry Creek gravity alternative would intercept wastewater flows from the existing Dry Creek sewer at the intersection of Mt. Vernon and Bluff and transport these flows via gravity along an alignment generally paralleling the existing 21-inch diameter Dry Creek sewer to George Washington. At George Washington the flow would be split: a portion continuing in the existing 21-inch sewer; and the majority being transported to the War Industry Sewer at Whitney Lane (Figure 14).

The estimated time required for construction, based on a construction rate of 30 feet per day, is 135 calendar days. The estimated total capital cost for this alternative is $786,237 and the estimated total present worth is $735,682. No increased operation and maintenance cost is associated with this alternative. Appendix II contains a cost breakdown for all alternatives considered in this study.

Mt. Vernon Gravity Interceptor Alternative

The Mt. Vernon gravity alternative would intercept flows from the existing Dry Creek sewer at the intersection of Mt. Vernon and Bluff and transport these flows via gravity in a 36-inch diameter sanitary sewer to an existing 42-inch sanitary sewer at Grove Avenue. This alternative requires limited but continued use of the existing Dry Creek sewer by converting its present 21-inch diameter to a 10-inch diameter. This constriction results from placing a 10-inch diameter plastic slipliner in the existing sewer and filling the space between the 10-inch and 21-inch pipe with a sandgrout mixture which prevents movement and provides structural integrity to the liner. The purpose of the liner is to provide sanitary sewer service

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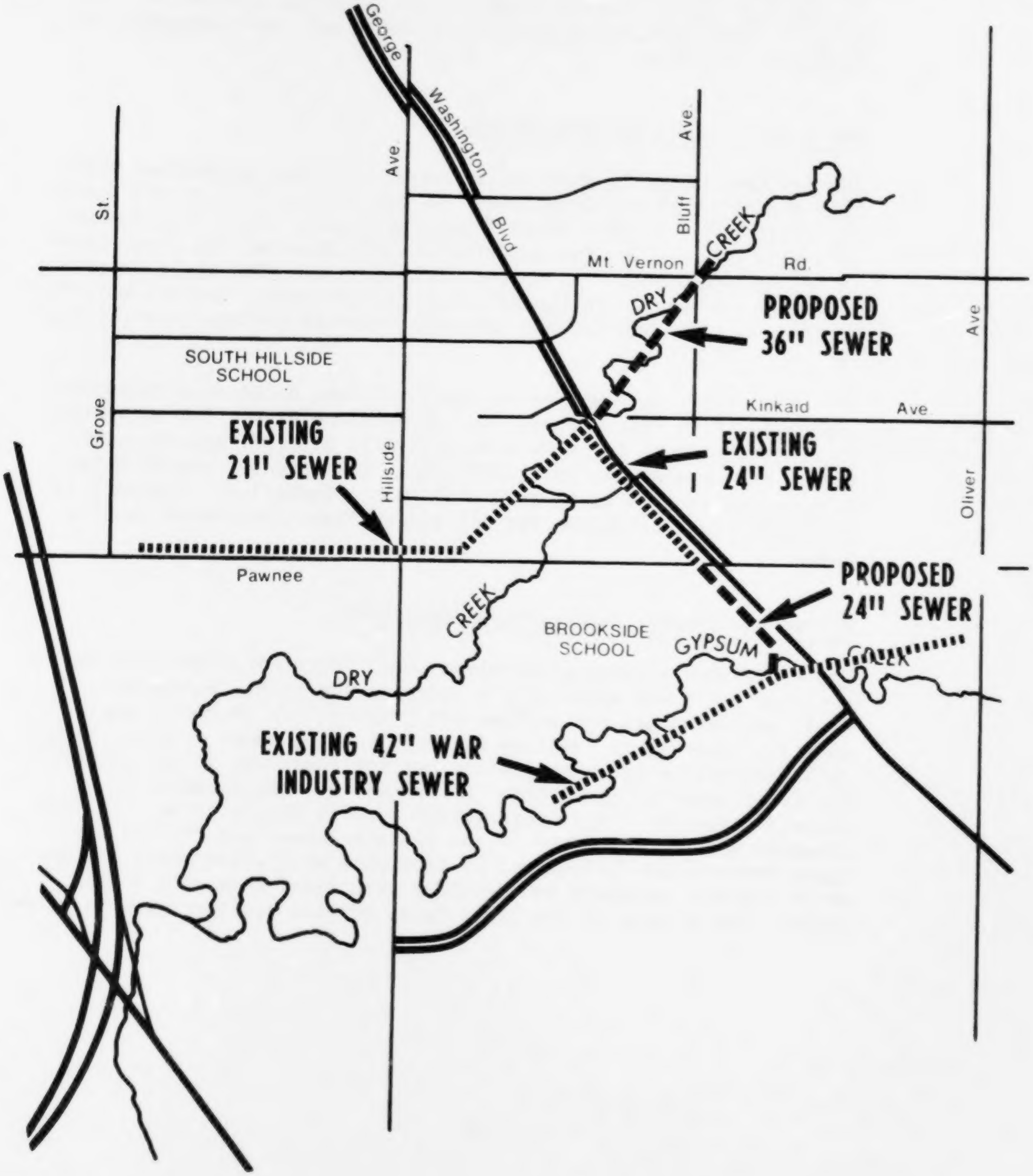
ROUTE OF DRY CREEK ALTERNATIVE

Figure 14


George Washington Blvd
Ave
Bluff Ave
Grove St.
Mt. Vernon Rd.
DRY CREEK
PROPOSED 36" SEWER
SOUTH HILLSIDE SCHOOL
Kinkaid Ave.
EXISTING 21" SEWER
Hillside
EXISTING 24" SEWER
Oliver Ave
Pawnee
PROPOSED 24" SEWER
CREEK
BROOKSIDE SCHOOL
GYPSUM CREEK
DRY
EXISTING 42" WAR INDUSTRY SEWER

to areas served by lateral sewers and house connections which currently flow to the existing Dry Creek interceptro (Figure 15).

Based on an estimated construction rate of 30 feet per day, approximately 300 calendar days are required to complete this alternative. The estimated total capital cost of this alternative is $1,689,763 and the estimated total present worth is $1,568,806.

Mt. Vernon Force Main Interceptor Alternative

The Mt. Vernon force main alternative would provide a wastewater pumping station near the intersection of Mt. Vernon and Bluff and would pump the flows under pressure through a 20-inch pipe to an existing 42-inch sewer at Grove Avenue. As with the Mt. Vernon gravity alternative, sewer routing for this alternative would be entirely within the Mt. Vernon roadway (Figure 15). This alternative would require the placement of a 10-inch diameter slipliner in the existing 21-inch sewer for the same reasons presented in the Dry Creek alternative description. The estimated construction time for the Mt. Vernon alternative, based on a rate of 50 feet per day, is approximately 185 calendar days. Shorter construction time is expected with a force main because it requires only a 5 to 10-foot deep trench

The total estimated capital cost for this alternative is $1,422,301. Additionally, this alternative will require an estimated $25,720 per year for operation and maintenance. The total estimated present worth of this alternative is $1,643,770.

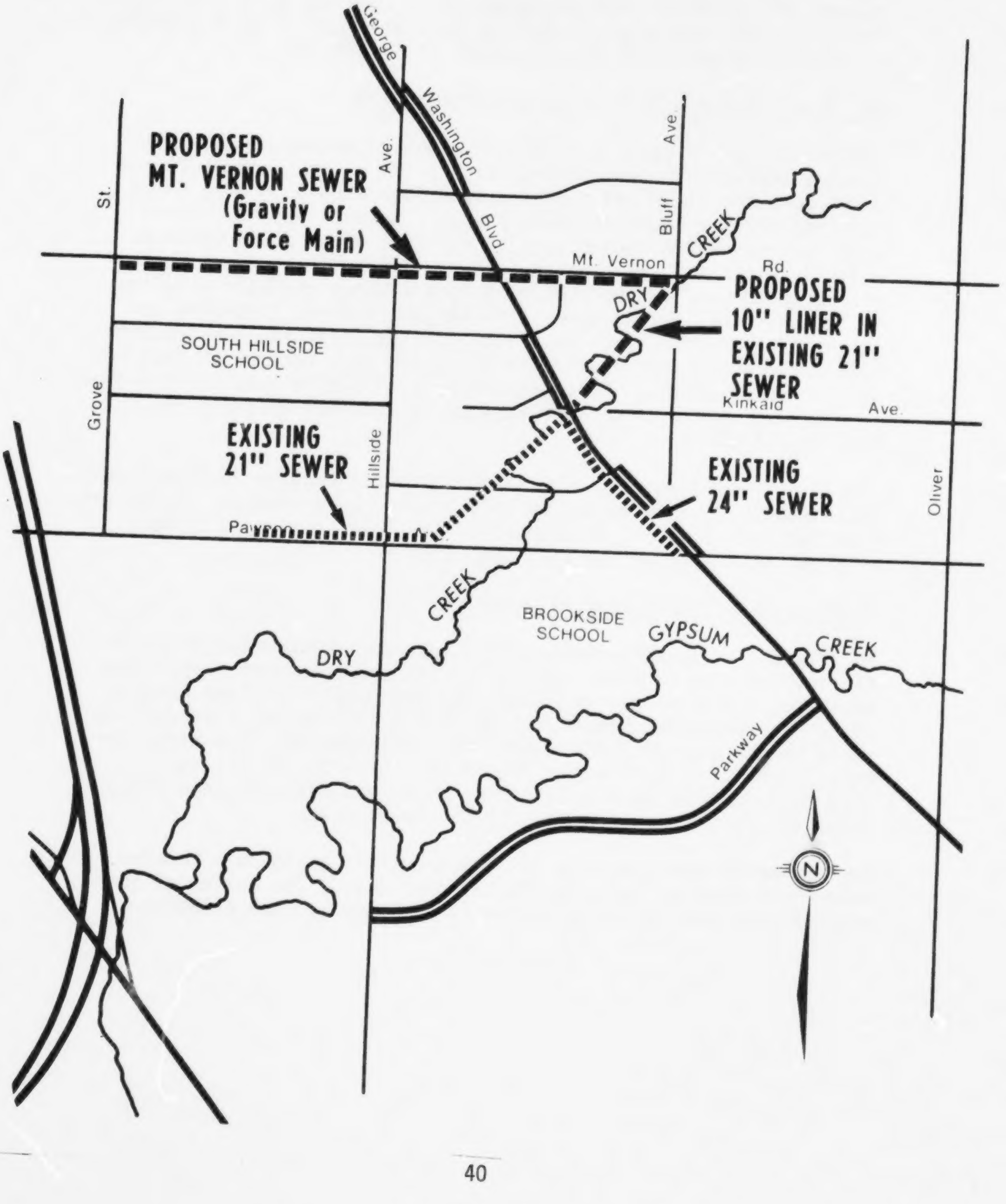
Bluff Gravity Interceptor Alternative

The Bluff gravity alternative would intercept wastewater flows at the intersection of Bluff and Mt. Vernon and transport these flows southerly via gravity along Bluff and then westerly along Kinkaid Street to George Washington. From George Washington, flow routing would be the same as for the Dry Creek alternative. The route for this alternative is shown in Figure 16. As with the Mt. Vernon alternatives, the Bluff alternative also requires a 10-inch diameter slipliner in the existing 21-inch Dry Creek sewer.

The estimated time required for construction, based on a construction rate of 30 feet per day, is 170 calendar days. The estimated total capital cost for this alternative is $985,000 and the estimated

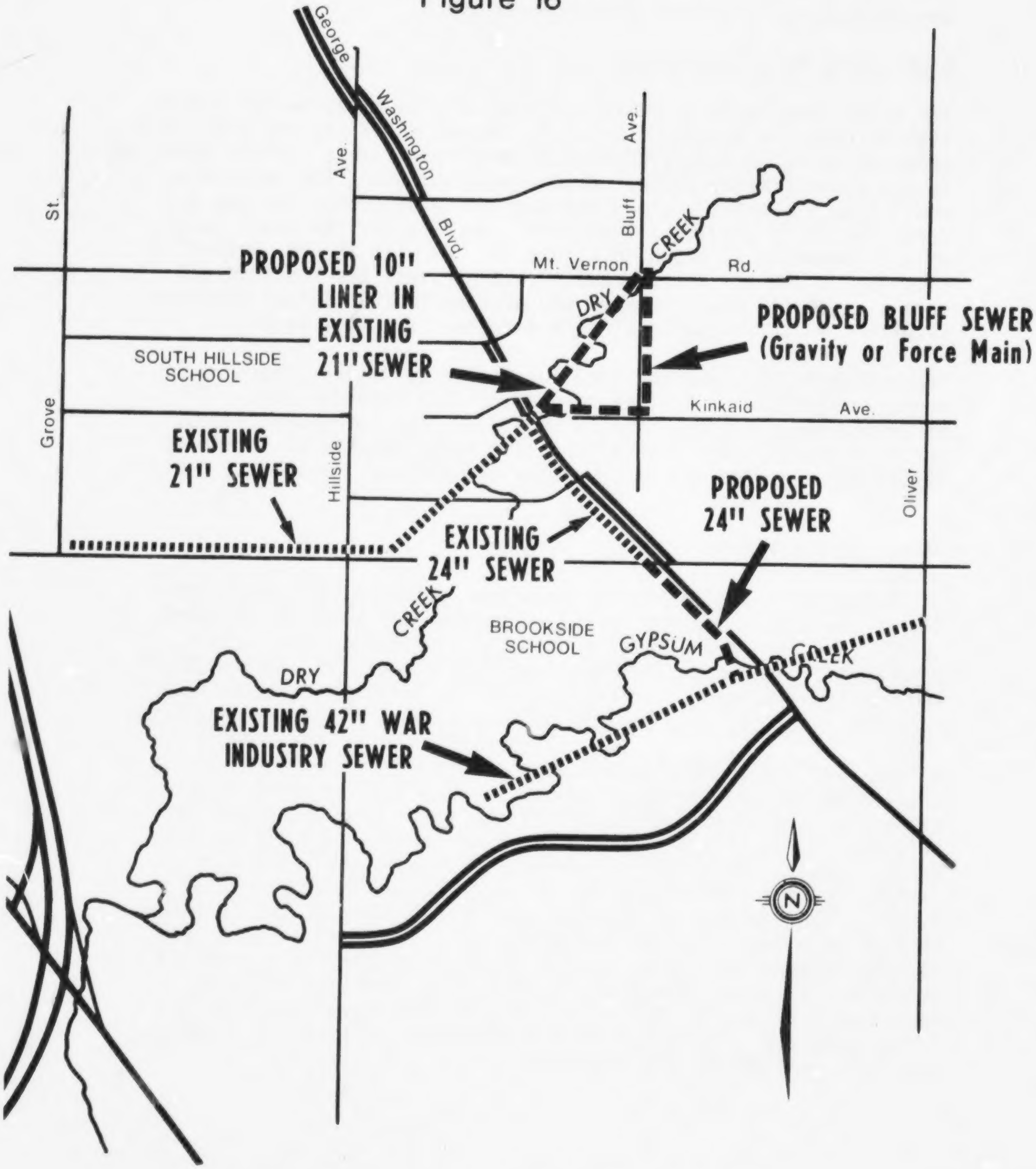
ROUTE OF MT. VERNON ALTERNATIVES

Figure 15


George Washington Blvd
PROPOSED MT. VERNON SEWER (Gravity or Force Main)
Grove St.
Hillside Ave.
Bluff Ave.
Mt. Vernon Rd.
DRY CREEK
PROPOSED 10" LINER IN EXISTING 21" SEWER
SOUTH HILLSIDE SCHOOL
Kinkaid Ave.
EXISTING 21" SEWER
EXISTING 24" SEWER
Pawnee Ave.
Oliver
CREEK
BROOKSIDE SCHOOL
GYPSUM CREEK
DRY
Parkway
N

ROUTE OF BLUFF ALTERNATIVES

Figure 16


George Washington Blvd.
Ave.
Bluff Ave.
St.
Grove
Mt. Vernon Rd.
CREEK
DRY
PROPOSED 10" LINER IN EXISTING 21" SEWER
PROPOSED BLUFF SEWER (Gravity or Force Main)
SOUTH HILLSIDE SCHOOL
Kinkaid Ave.
EXISTING 21" SEWER
Hillside
PROPOSED 24" SEWER
Oliver
EXISTING 24" SEWER
CREEK
BROOKSIDE SCHOOL
GYPSUM CREEK
DRY
EXISTING 42" WAR INDUSTRY SEWER
N

total present worth is 921,227. There are no additional operation and maintenance costs for this alternative.

Bluff Force Main Alternative

The Bluff force main alternative would provide a wastewater pumping station near the intersection of Mt. Vernon and Bluff and pump flows under pressure through a 20-inch diameter pipe along a route identical to the Bluff gravity route. At George Washington, the wastewater would flow via gravity along the same route described for the Dry Creek and Bluff gravity alternative. Routing for the Bluff force main alternative is shown in Figure 16. As with the Mt. Vernon alternative and the Bluff gravity alternatives, the bluff force main alternative would require the placement of a 10-inch diameter slipliner in the existing 21-inch diameter Dry Creek sewer.

The estimated construction time for this alternative, based on a construction rate of 30 feet per day, is 120 calendar days. The estimated total capital cost is $1,133,925 and the total present worth is $1,197,413. This alternative would require an estimated $9,550 per year for operation and maintenance of the pumping station.

No Action Alternative

Consideration was given to the no-action alternative. This alternative means that a grant for corrective action would not be made by EPA to assist the City of Wichita in alleviating the current interceptor problem in the Dry Creek area between Mt. Vernon, Bluff, and George Washington. An analysis of the no-action alternative indicates that it is unfeasible primarily because the existing flow capacity of the Dry Creek sewer is insufficient to transport all wet weather flows. During wet weather periods, flow in the Dry Creek sewer system increases dramatically. This increase is due primarily to rainwater which enters the sewer through cracks and holes which result from the age and deteriorated condition of the present sewer. As a result, sewage backs up in the collection system above Mt. Vernon and Bluff, which causes sewage to enter homes in the vicinity of Bleckley and Harry Streets. During these periods of excessive flow, the sewage which is diverted into the adjoining sewer basin also causes the 24-inch sewer to exceed its capacity and causes sewage to overflow into basements along Mt. Vernon west of Bluff. Without increasing the capacity of the Dry Creek sewer and elimination of the inter-basin diversion, these overflows into homes will continue.

A second consideration in rejecting the no-action alternative is the structural condition of the existing Dry Creek interceptor. Video tapes of the sewer, made in 1974 by the City of Wichita, were reviewed by EPA regional personnel. This review indicated that the existing Dry Creek interceptor contains cracks along approximately 33 percent of its length, has several pipe joints which are out of alignment, and has sagged or settled below its original position in several locations. While none of the structural deficiencies indicate imminent failure of the line, a period of prolonged wet weather sufficient to raise the water table above the sewer could change the supportive properties of the soil and cause line failure (Walker 1978).

CHAPTER IV: ENVIRONMENTAL IMPACTS OF ALTERNATIVES

Several impacts which have been identified apply equally to all alternatives under consideration.

Increased Noise Levels

Local noise levels for all alternatives will temporarily increase due to construction. The present noise levels within the potential impact areas are from 58 to 74 decibels. Noise resulting from construction equipment is estimated to be approximately 88 decibels (Center 1977). This level would result in a cumulative noise level of approximately 89 decibels at a distance of 50 feet from the site or 83 decibels at 100 feet. The latter level is approximately equal to the noise level of a typical city bus measured at 50 feet.

Few direct mitigative measures can be employed to reduce noise impacts. The impact of noise on the local population can be decreased by limiting construction activity to the daytime hours and requiring that equipment is maintained in a working condition that will not result in operational noise levels that exceed the Public Building Service Specifications of 1973.

Decreased Property Values

An evaluation of the impacts of the feasible alternatives on residential property values within the Dry Creek study area by the Department of Housing and Urban Development (HUD) indicates that these alternatives will cause no measurable damage to property owners (Anderson 1978). A survey of the market values of over 200 home sales within the basin area indicated that homes with wooded areas at the rear of the property sold at a comparable price to sales of homes without this rustic atmosphere. Additionally, the corridor effect would not be visible to home owners whose field of view is perpendicular to the corridor because of screening by the remaining trees.

Increased Urban Development

Increased urban development has often been associated with the

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construction of sanitary sewers. One consequence of development is an increase in storm water runoff resulting from an increase in the amount of impervious area.

None of the alternatives being considered for funding by EPA are considered to be a potential direct or indirect cause for increasing storm water runoff. While all alternatives require increased interceptor capacity, the exclusive purpose of this increase is to transport basin flows resulting from excessive infiltration and inflow. The present interceptor capacity is sufficient to transport dry weather flows of the ultimate basin population.

Dry Creek Alternative

Decreased Aesthetic Value

This alternative would have the greatest impact on the aesthetic value of the Dry Creek area because it requires the construction of approximately 1700 feet of pipe through the Dry Creek area. Necessary site clearing, excavation, and related construction activities would result in a corridor through an area of aesthetic value to some residents. The required corridor would encompass approximately 1.92 acres of which 1.35 acres consist of an aesthetically pleasing wooded area (Figure 17). The aesthetic impacts of this alternative can be somewhat mitigated by revegetation of the corridor. However, unless replanting provides trees of equal maturity of the contiguous woods, the impact will not be completely mitigated. A revegetation scheme which creates a visual barrier of mature trees at the ends of the corridor coupled with plantings of smaller trees at other locations would be effective and feasible.

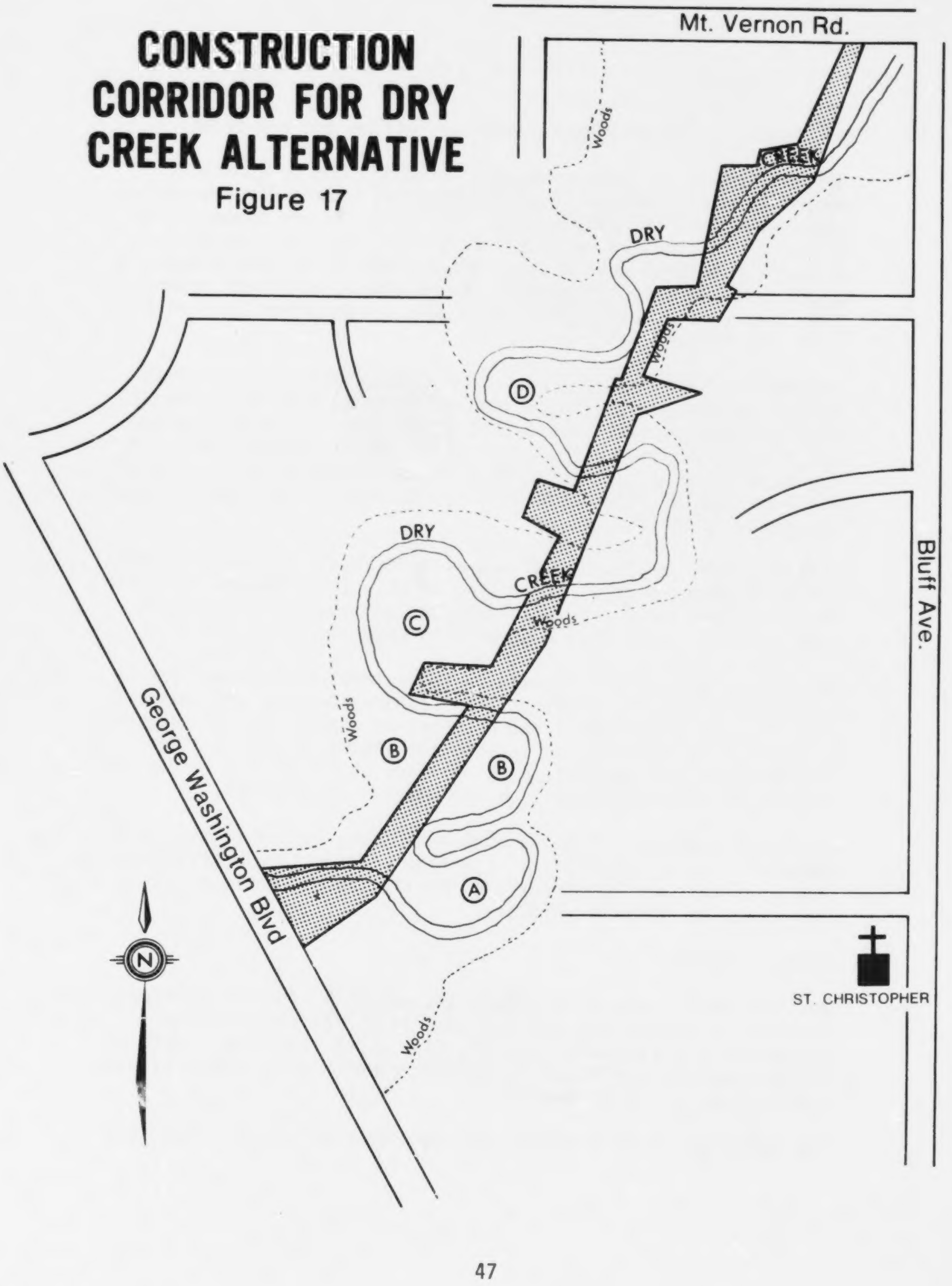
Disruption of a Natural Area and Its Associated Wildlife

The Dry Creek alternative would result in the most serious impact on the natural environment of the Dry Creek area. Sewer easements, both permanent and temporary, encompass an area of 1.35 acres of riparian woodland or about 13.5 percent of the total riparian acreage.

A total of 133 trees greater than 4.5 inches in diameter or approximately 6 percent of the total woodland trees are located within these easements. Elms dominate both in number (50) and percent (38) followed by osage orange with 39 trees and 29 percent of the total, and hackberry with 13 trees and 10 percent of the total trees within the easement. The remaining 22 percent of the trees

CONSTRUCTION CORRIDOR FOR DRY CREEK ALTERNATIVE

Figure 17


Mt. Vernon Rd.
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George Washington Blvd
Bluff Ave.
N
Woods
ST. CHRISTOPHER

are mulberry, black walnut, boxelder, willow and red cedar.

Several impacts of tree removal on wildlife can be expected. Approximately 57 of the trees (43 percent) marked for removal are considered food or "mast" trees. Of these, 33 are osage orange, a tree of marginal value as wildlife food, but the remaining 24 are of substantial food value. Since there is an even dispersion of food source trees throughout the woodland, any areal reduction from construction activities represents a concurrent loss of wildlife food sources.

In addition to removing a portion of the wildlife food source, removal of trees will impact area wildlife by removing potential nest and cover areas. The extent which nest and cover area modifications will impact the area is not totally known. One such impact could be a slight decrease in the number of typical local woodland species with corresponding increase in open area or edge species of wildlife.

Tree and undergrowth removal may also result in increased competition between species for nesting sites. If sufficient suitable nesting sites are not available in the undisturbed areas, some species may be forced to seek nesting sites in other areas.

The impact of this alternative on the natural environment can be greatly mitigated by vigorous site restoration work and construction timing. Development and approval of a revegetation strategy by a wildlife biologist to incorporate increased food availability, escape cover, and adequate nesting sites would greatly reduce the impacts of this alternative on the natural environment.

Timing of construction activities would also help mitigate the impacts of this alternative. Limiting construction activity and intrusion to nonbreeding periods (winter months) would minimize the impact on resident wildlife.

Stream Erosion

The Dry Creek alternative offers the potential for the greatest increase in stream bank and bed erosion during construction because this alternative requires five creek crossings. Each of these crossings may result in serious erosion as a result of bank modification and tree removal.

The impact of creek crossings and bank erosion can be mitigated in several ways. Erosion resulting from construction can be controlled by the development of a site-specific erosion and sediment pollution control plan as required by EPA requirements (Program Requirement memorandum 78-1), and by scheduling construction activities for the low rainfall months of November through March. Post-construction erosion can be mitigated by requiring that erosion protection and bank stabilization devices such as gabions and rock riprap be installed at each creek crossing.

Public Safety

This alternative would have relatively minor impact on public safety. In the area between the intersection of Bluff and Mt. Vernon, and George Washington, construction activities would be in an area remote to normal pedestrian or vehicular traffic. As such, public safety impacts on both pedestrian and vehicular traffic are minor. Within the construction area along George Washington sufficient off-road right-of-way exists to minimize traffic disruption.

Several mitigative measures can be employed to reduce impacts on public safety. Pedestrian safety can be protected during working hours by on-site control. During non-construction hours, required backfilling of trenches or covering trenches with nontamperable material, such as steel plates, would eliminate this hazard to public safety.

The impact on vehicular traffic safety can be greatly mitigated by maintaining as nearly normal a traffic flow as possible. Where this is not possible, traffic warning signs and public announcements, via the media, of the danger and alternative routes can be employed.

Public Inconvenience

Inconvenience to area residents resulting from implementation of the Dry Creek alternative would be limited to the portion of the route along George Washington. Approximately seven private accesses would be affected, in addition to the intersection of George Washington and Pawnee. Mitigative measures which can be employed to minimize these impacts include providing temporary street access and scheduling of construction activities during nonrush hours.

Mt. Vernon Road Gravity and Force Main Alternative

These alternatives are being considered together because they have nearly identical impacts on the environment, the only difference being that the Mt. Vernon force main alternative would require increased energy use to transport the wastewaters.

Energy Use

The Mt. Vernon force main requires the use of pumps to transport wastewater flows and, as such, would impact the environment by requiring increased energy use to operate the pumps. This alternative requires a series of pumps which produce a total of 350 horsepower. Operation of these pumps will require approximately 514,400 kilowatt hours of electricity per year or the amount of electricity consumed by 57 typical homes in Wichita. There is no method available to mitigate this impact.

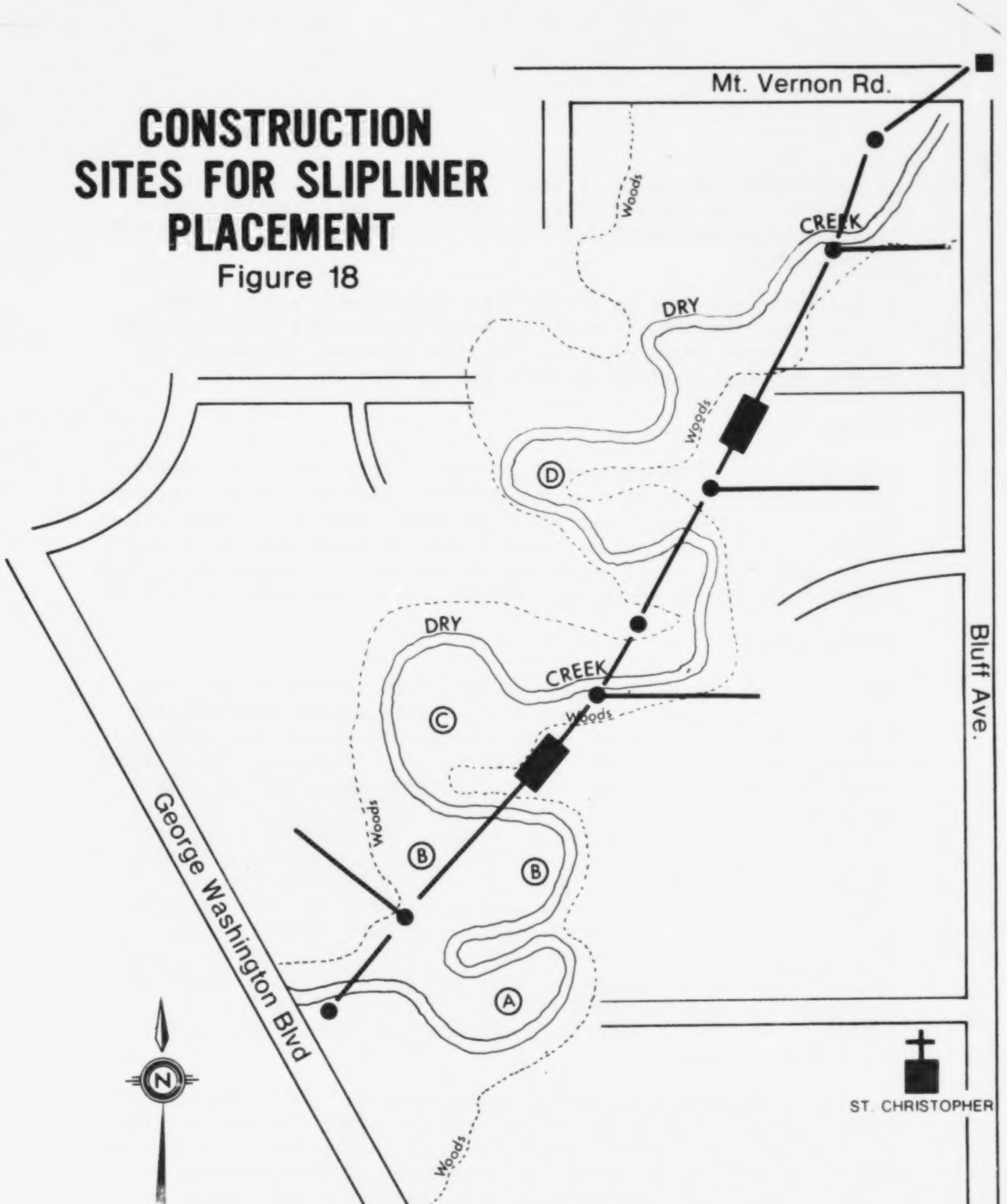
Decreased Aesthetic Value

Minor impacts on the aesthetic environment may result from placement of the required 10-inch liner, reconnection of service liner, and manhole modification. Placement of the liner will require excavation of the existing sewer at two or three locations. Each of these excavations (0.023 acres each) and access for service reconnection and manhole modification (Figure 18) could result in temporary decreased aesthetic quality.

Mitigation for impacts of these alternatives on aesthetic values can be accomplished by two methods. The first method requires careful planning. The location of the excavations required to insert the liner can be arranged, within acceptable technical limitation, to avoid areas of exceptional aesthetic value. As with planning for liner pull sites, careful planning of access to sites necessary for lateral connections and manhole modifications can be used as mitigation where possible. Additional mitigation can be accomplished by limiting the access to the shortest and narrowest dimensions and by revegetation to a nearly original condition.

Disruption of a Semi-Natural Area and Its Associated Wildlife

The impacts on the semi-natural Dry Creek and its wildlife from these alternatives would result specifically from the installation of the plastic liner, service and lateral line reconnection and manhole modification. At these locations, the possibility exists that construction and access could result in the removal


Mt. Vernon Rd.
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George Washington Blvd
Bluff Ave.
ST. CHRISTOPHER
N

CONSTRUCTION SITES FOR SLIPLINER PLACEMENT
Figure 18

of some vegetation which is used as food source, nesting sites, or escape covers for wildlife in the area. The relatively small area disturbed and short duration of intrusion reduces the severity of this impact.

Impact mitigation can be accomplished by planning access points and construction time to have the least deleterious effect on the area. In areas where vegetation must be removed, replanting to provide maximum wildlife benefits can be required.

Stream Erosion

Both Mt. Vernon alternatives would have little impact on construction induced stream bed and bank erosion since they do not require sewer construction and excavation at creek crossings. These alternatives however, present a potential impact where passage of equipment across the creek channel may be required to insert the 10-inch sewer liner, modify manholes, or make lateral and house connections.

Public Safety

The principal impact on public safety, both pedestrian and vehicular, is due to trenching operations. With regard to pedestrian traffic, the major concern is the danger of unauthorized persons entering the trench either by accident or on purpose. The greatest period of danger is during non-construction hours when on-site supervision is lacking. Safety impacts to vehicular traffic are also the result of trenching operations. Mt. Vernon, along the route of these alternatives, overlays several sanitary and storm sewers. The position of these sewers makes it difficult to confine trenching operations to the edge of the street or right-of-way. This may necessitate closing one or more traffic lanes. Because Mt. Vernon is a major arterial street which carries an estimated 10,000 to 12,000 vehicles per day (Traffic Engineering Department), and intersects additional arterial streets, a reduction in traffic capacity could greatly increase the potential for traffic mishaps.

Several mitigative measures can be employed to reduce impacts on public safety. Pedestrian safety can be protected during working hours by on-site control. During non-construction hours a requirement that trenches be backfilled or covered by nontamperable material, such as steel plates, would eliminate this hazard to the public safety.

The impact on vehicular traffic safety can be greatly mitigated by maintaining as nearly normal a traffic flow as possible. Where this is not possible, traffic warning signs and public announcements, via the media, of the danger and of alternate routes can be employed.

Public Inconvenience

Construction along Mt. Vernon has the potential for inconveniencing approximately 60 residences with driveways which enter directly off Mt. Vernon, 33 residences on Lorraine, a deadend street with access off Mt. Vernon, three churches, various access points, and a shopping center (Figure 19). Additionally, eight streets must be completely or partially crossed. Each of these crossings would cause inconvenience due to reduced traffic speeds.

Mitigation by providing temporary access, either by backfilling excavation to grade or by providing steel plate bridging, would greatly reduce the inconvenience of those who require access to Mt. Vernon. Additionally, timing work activities to avoid, if possible, periods of peak traffic through intersections and in and out of driveways would also mitigate this impact.

Bluff Street Gravity and Force Main Alternative

These alternatives are being considered together because they have nearly identical impacts on the environment. The Bluff force main alternative differs because it requires pumping the wastewater and hence an increase in energy consumption.

Energy Use

The Bluff force main alternative would require a series of pumps capable of supplying 130 horsepower. The annual energy consumption of these pumps would be 191,000 kilowatt hours of electricity or the amount consumed by 21 typical Wichita single-family homes. There is no method available to mitigate this impact.

Decreased Aesthetic Value

As previously outlined, these alternatives require construction of the transport pipe and lining to the existing 21-inch sewer to carry flows from laterals and house connections. Aesthetic impacts and mitigative measures associated with lining the existing sewer are similar for both Mt. Vernon alternatives.

In addition to aesthetic impacts from placement of the sewer liner, the Bluff alternatives also impact upon an additional aesthetically pleasing wooded area of approximately 0.38 acres required for a construction corridor (Figure 20). As is true of the Dry Creek aesthetic impact, this alternative would impact most seriously on residents with a field of view parallel to the corridor.

Mitigative actions which could be incorporated with these alternatives include route planning to minimize aesthetic degradation, revegetation and planting to create visual barriers, and limiting corridor width to the minimum required for construction.

Disruption of a Semi-Natural Area and Its Associated Wildlife

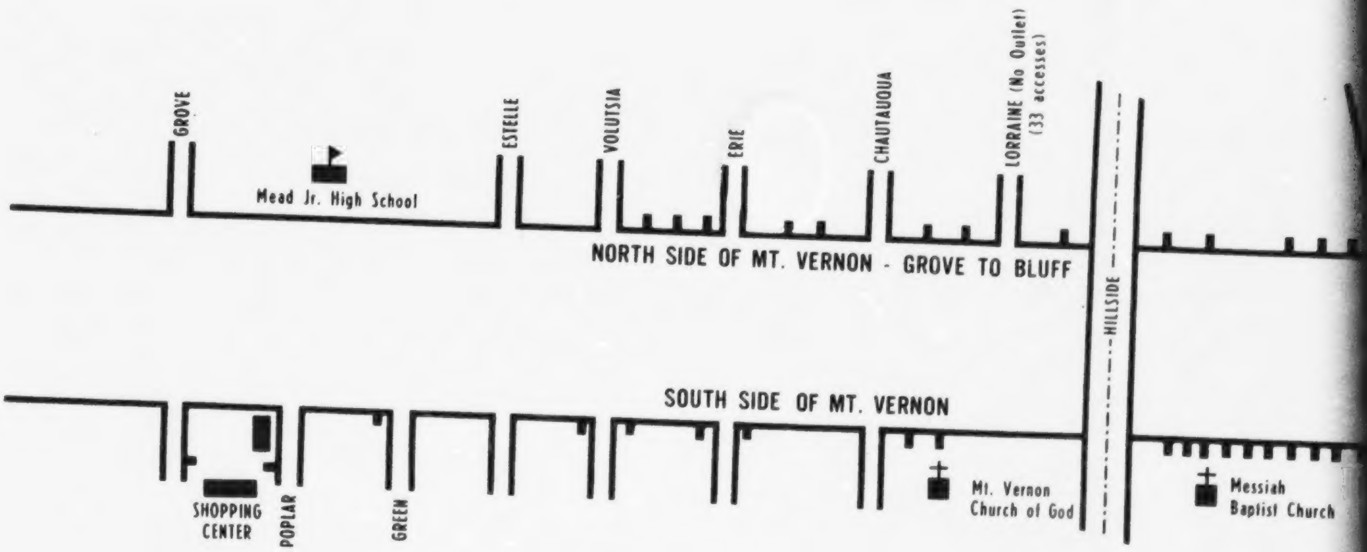
These alternatives impact on the natural environment in two ways: placement of the liner; and construction of new sewers. Both require intrusion into the wooded Dry Creek corridor to place a liner in the existing sewer. The impacts associated with liner placement are the same as those presented for the Mt. Vernon alternative. In addition to this disturbance, an additional 0.38 acres of riparian woodland (3.8 percent of the total) would be impacted for the placement of the new sewer (Figure 20). The corridor required for these alternatives would pass through one of the most densely wooded portions of the Dry Creek area. Approximately 50 trees (2.3 percent of the total trees in the woodland) would be removed, 68 percent of which are food or "mast" trees. As with the Dry Creek alternative, the removal of trees will result in the loss of wildlife food source, nesting, and escape cover. Mitigative measures for these alternatives are similar to those present for the Mt. Vernon alternative (liner placement) and the Dry Creek alternative.

Stream Erosion

These alternatives could increase stream bank and bed erosion as a result of construction activities required for insertion of the 10-inch diameter plastic sewer liner and because these alternatives require two creek crossings. The impacts associated with liner placement are the same as those presented for the Mt. Vernon alternatives. The impacts associated with the required creek crossings are the same as those presented for the Dry Creek alternative. All mitigative measures which can be applied to the Mt. Vernon alternatives and the Dry Creek alternative are appropriate to the Bluff alternative.

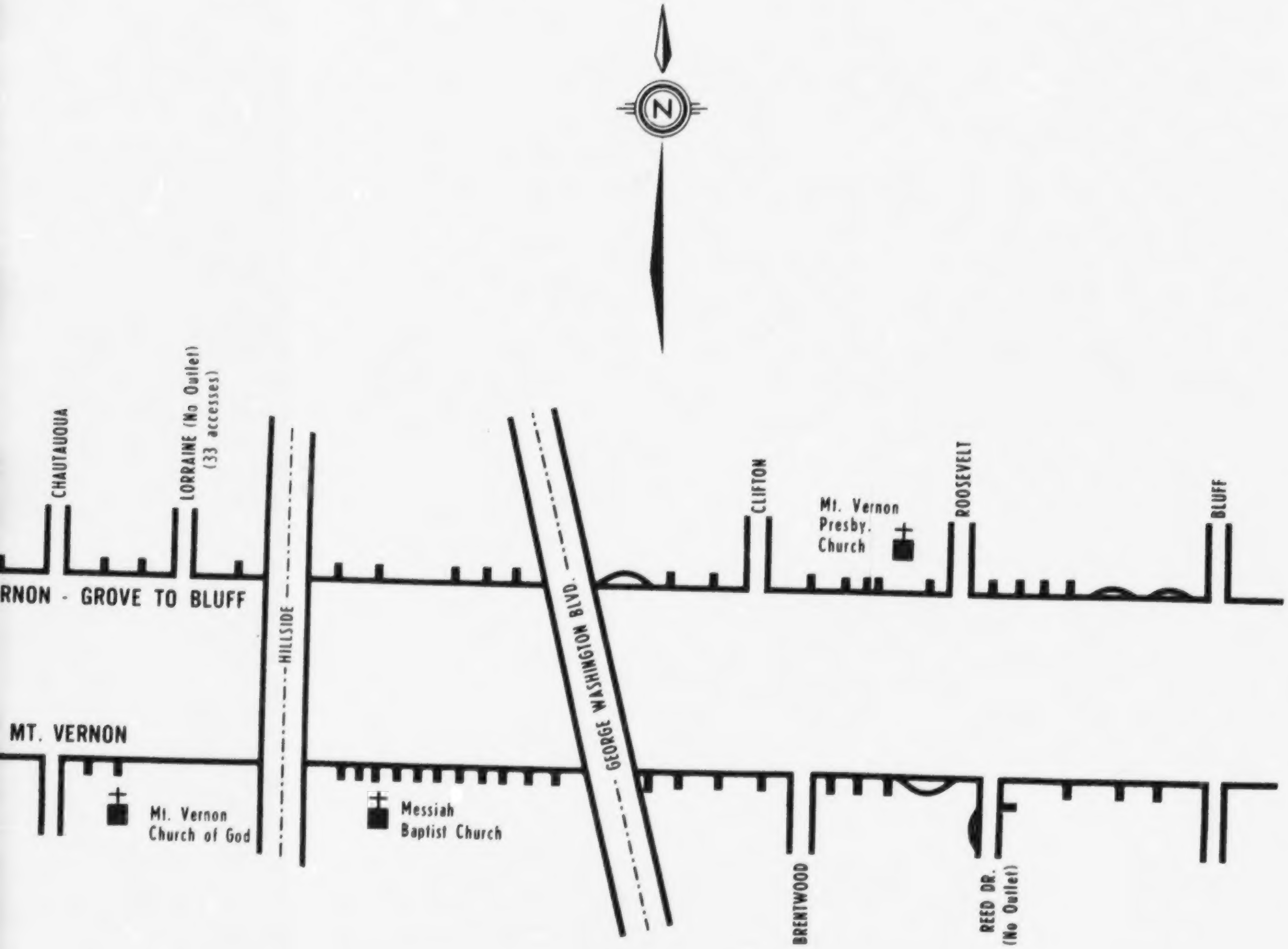
POTENTIAL ACCESS DISRUPTION FOR MT. VERNON ALTERNATIVES

Figure 19


GROVE
Mead Jr. High School
ESTELLE
VOLUTSIA
ERIE
CHAUTAUQUA
LORRAINE (No Outlet)
(33 accesses)
NORTH SIDE OF MT. VERNON - GROVE TO BLUFF
HILLSIDE
SOUTH SIDE OF MT. VERNON
SHOPPING CENTER
POPLAR
GREEN
Mt. Vernon Church of God
Messiah Baptist Church

A

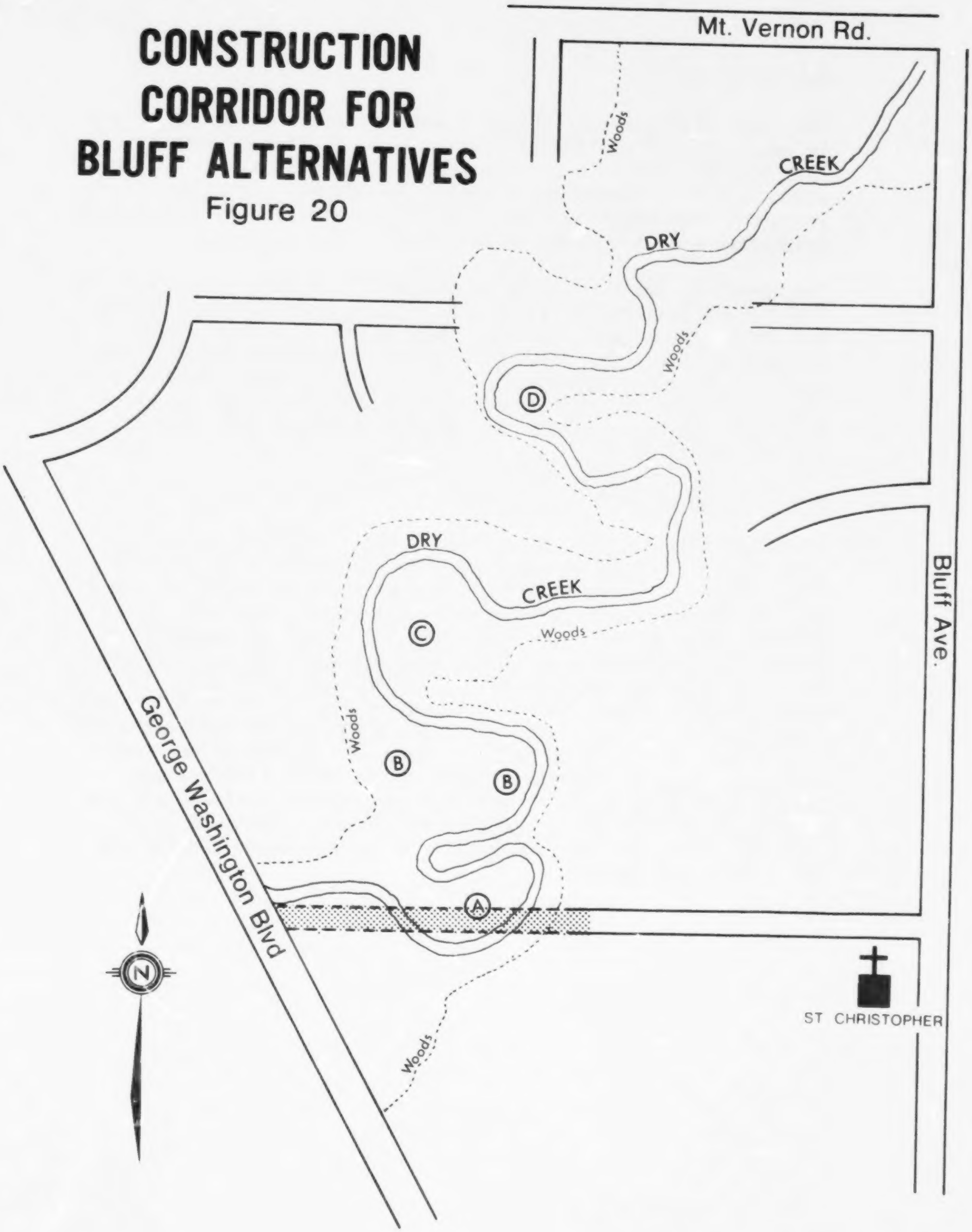
N FOR
ES


CHAUTAUQUA
LORRAINE (No Outlet) (33 accesses)
RNON - GROVE TO BLUFF
HILLSIDE
GEORGE WASHINGTON BLVD.
CLIFTON
Mt. Vernon Presby. Church
ROOSEVELT
BLUFF
MT. VERNON
Mt. Vernon Church of God
Messiah Baptist Church
BRENTWOOD
REED DR. (No Outlet)

B

CONSTRUCTION CORRIDOR FOR BLUFF ALTERNATIVES

Figure 20


Mt. Vernon Rd.
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Bluff Ave.
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George Washington Blvd
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Woods

Public Safety

The Bluff alternatives present a special impact on public safety in regard to the section of routing along Bluff and Kinkaid. This portion parallels a route taken by area school children who attend Griffith Elementary School. The natural curiosity of young children makes them particularly susceptible to the dangers associated with trenching operations.

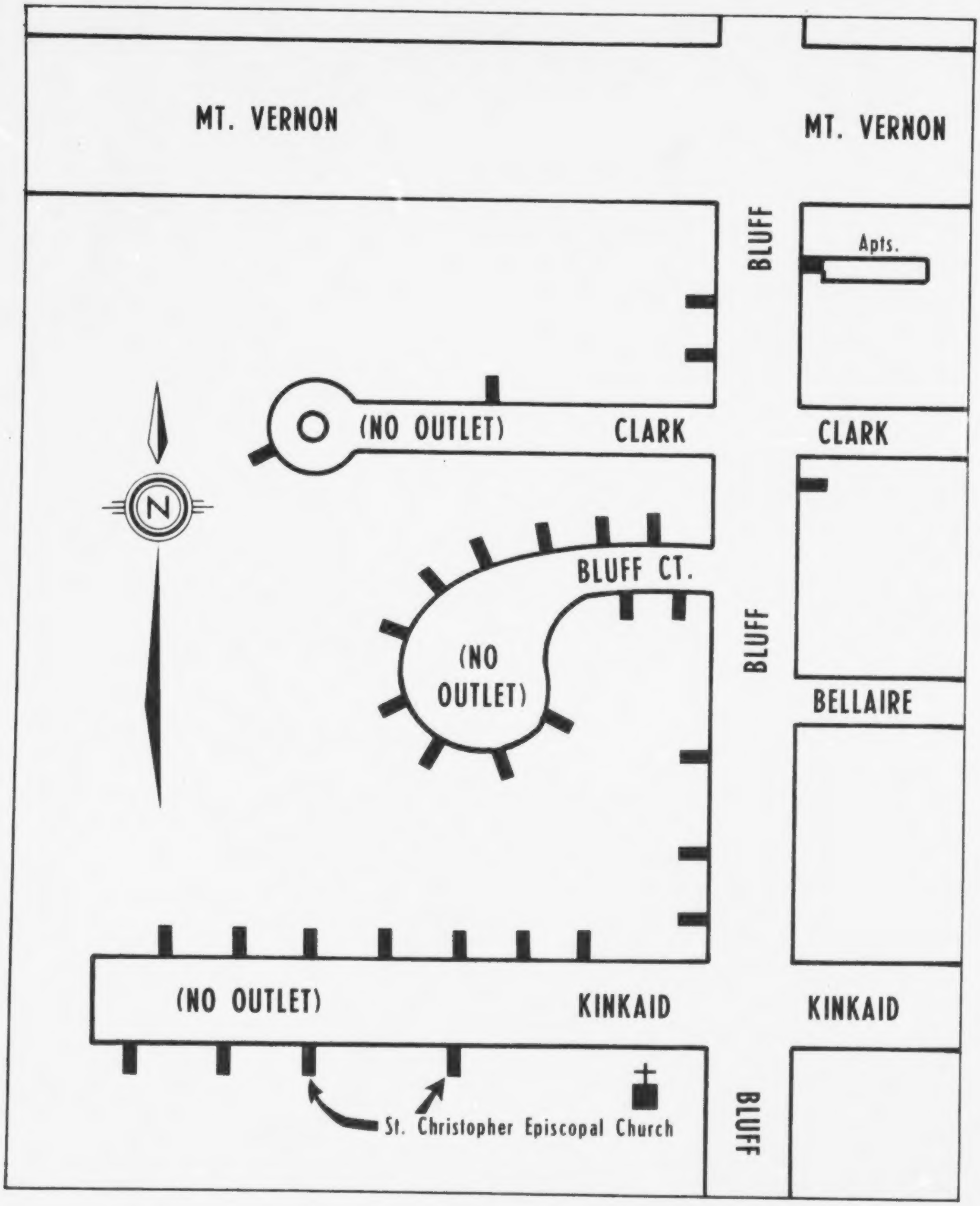
The impact on traffic safety is not severe because both Bluff and Kinkaid are residential streets and construction between Pawnee and Whitney Lane can be accomplished in off-road right-of-ways. Mitigative strategies presented for the Mt. Vernon alternatives apply to these alternatives. Additionally, an educational program by parents and school officials on the potential hazards of this construction could be implemented to reduce the potential for injury.

Public Inconvenience

The Bluff alternatives, by virtue of their identical routing, will result in similar temporary inconveniences to residents. These routes have the potential to impact either seven residences and one church, or 26 residences in the areas along Bluff and Kinkaid (Figure 21). The difference in numbers of residents is dependent upon which side of the street excavation takes place. Utilization of the east side of Bluff and the south side of Kinkaid would affect the least number of residences in this area. These portions of the interceptor route would also reduce traffic flow along its entire route and result in crossing three intersections. Routing the interceptor southeast of Pawnee along George Washington would impact on seven private accesses and the intersection of Pawnee and George Washington. The impacts of these alternatives can be mitigated by method described for the Mt. Vernon alternatives.

POTENTIAL ACCESS DISRUPTION FOR BLUFF ALTERNATIVES

Figure 21


MT. VERNON
MT. VERNON
BLUFF
Apts.
(NO OUTLET)
CLARK
CLARK
N
BLUFF CT.
(NO OUTLET)
BLUFF
BELLAIRE
(NO OUTLET)
KINKAID
KINKAID
St. Christopher Episcopal Church
BLUFF

CHAPTER V: SUMMARY, EVALUATION AND ALTERNATIVE SELECTION

The purpose of this chapter is to provide a brief review of the alternatives and impacts considered for this project so that a concise comparative evaluation of alternatives can be made. Table IV summarizes the important aspects for the alternatives under consideration.

Alternatives comparison must also consider the variation in relative severity and duration of an impact. Impacts may be generally grouped in four classes:

Class I: Impacts which are adverse for a limited time (construction phase), but decrease in severity with longer periods of time. The end result is a return to ambient condition of the study area.

Class II; Impacts which are adverse for a period of time following construction but ultimately allow a return to ambient condition.

Class III: Impacts which are adverse during construction and for a period of time following construction, but result in a long-term beneficial impact.

Class IV: Impacts which remain adverse indefinitely.

These classes of impacts are presented on the following graphs. Relative time is shown by the horizontal axis, and relative intensity of the impact by the vertical axis.

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Each impact identified for this project is so represented along with a brief narrative description.

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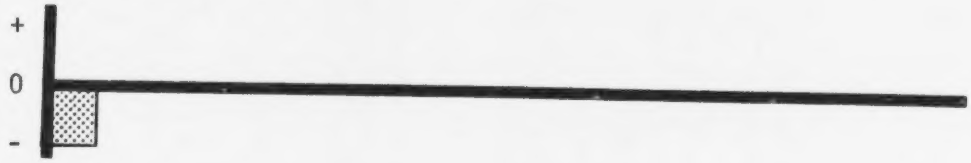
Table IV: Summarization of Impacts

Impacts	Alternatives		
	Dry Creek	Mt. Vernon	Bluff
Cost	$	$ Mt. Vernon Gravity $ Mt. Vernon Force	$ Bluff Gravity $ Bluff Force Main
Noise	Increase during construction	Increase during construction	Increase during construction
Aesthetics	Damage due to 1.92 acres construction corridor. Damage not irreversible but extends beyond construction period.	Possibility of some damage but an area less than 0.1 acres.	Damage due to 0.32 acre construction corridor. Damage not irreversible but extends beyond construction period.
Disruption of Natural Environment	Damage due to removal of 133 mature trees (4 inches in diameter), and change from a mature woodland habitat to an immature woodland.	Possibility of some damage to an area less than 0.1 acre.	Damage due to removal of 50 mature trees and change from a mature woodland habitat to an immature woodland.
Stream Bank Erosion	Excavation required for 5 creek crossings.	No excavation required for creek crossings but possibility of infringement on creek banks.	Excavation required for 2 creek crossings.

Table IV: Summarization of Impacts (Cont.)

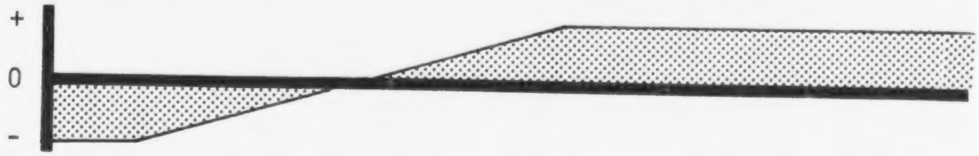
Impacts	Alternatives		
	Dry Creek	Mt. Vernon	Bluff
Public Inconvenience	7 accesses will be temporarily blocked.	64 accesses will be temporarily blocked.	15 accesses will be temporarily blocked.
Public Safety	Construction in an area generally remote to pedestrian and vehicular traffic.	Construction located within an arterial street.	Construction located in a residential street.
Energy Use to Transport Wastewater		(Force main alternative) Annual energy use equivalent to 57 homes (514,400 kilowatts).	(Force main alternative) Annual energy use equivalent to 21 homes (191,000 kilowatts).

Noise (Class I)



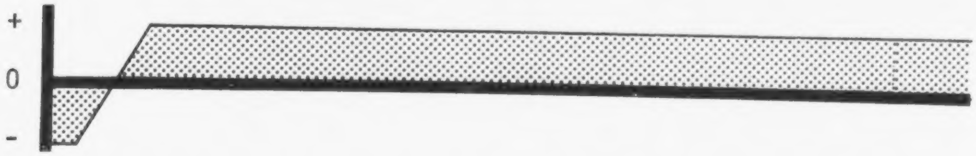
Increased noise will be an adverse impact only during construction.

Disruption of Natural Area and Its Associated Wildlife (Class III)



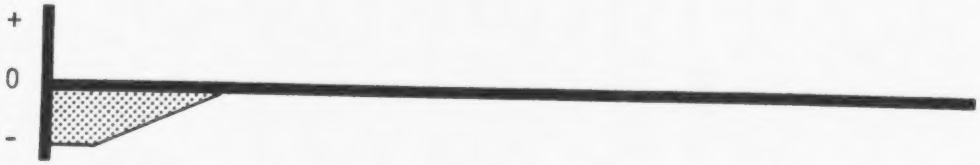
Although removal of trees will result in an immediate adverse impact, the mitigative strategy of revegetation with plants of value to wildlife will provide a long-term beneficial impact.

Stream Bank Erosion (Class III)



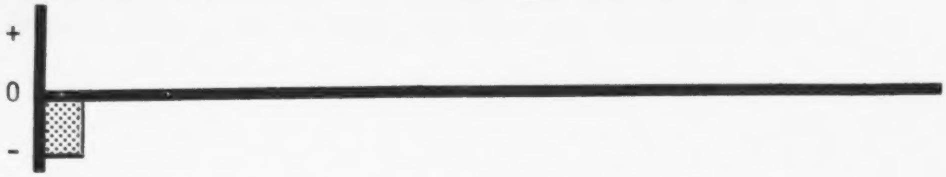
During construction increased erosion is an adverse impact. Bank stabilization at creek excavation will arrest future erosion at these locations and provide a long-term beneficial impact.

Aesthetic Values (Class II)



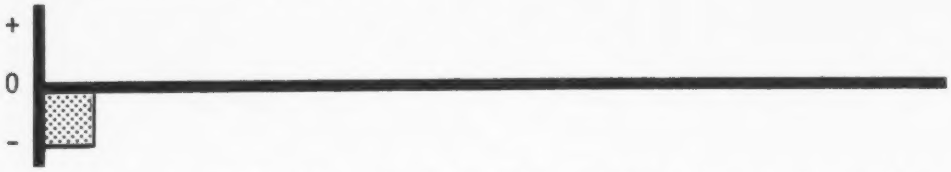
The initial removal of vegetation will cause adverse impact on aesthetic values. However, as planting required as a mitigative strategy matures this impact will be reduced in severity until preconstruction conditions are reached.

Public Safety (Class I)



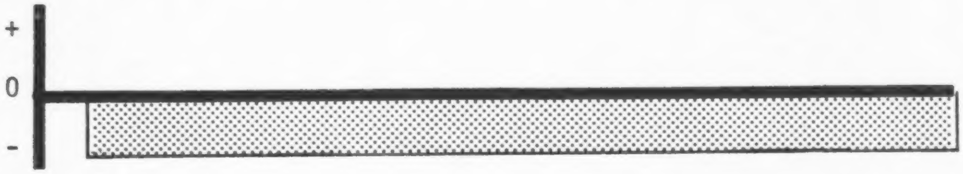
With the completion of construction there will be no adverse impact.

Public Inconvenience (Class I)



Inconvenience to local residents would be limited to construction periods.

Energy Use to Transport Wastewater (Class IV)



With the completion of construction and placement of a pumping station in service there would be an adverse impact on energy consumption for the life of the project.

Alternatives can be evaluated and ranked based on consideration of both the summarization of the alternative and the relative intensity and duration of the impacts.

Using this information, each impact except cost, for an alternative can be assigned a value of 1 (minor impact, 2 (moderate impact), or 3 (major impact). Cost impacts, in which accurate values are known can be ranked for 1 for lowest to 5 for highest cost.

Table V presents the ranking of alternatives along with a brief explanation of the rationale used in the ranking process.

Table V: Evaluation of Alternatives: Ranking and Rationale

Impacts	Alternatives				
	Dry Creek	Mt. Vernon Gravity	Mt. Vernon Force Main	Bluff Gravity	Bluff Force Main
Noise	(2) impact of limited duration.	(2) impact of limited duration.	(2) impact of limited duration.	(2) impact of limited duration.	(2) impact of limited duration.
Aesthetics	(3) impact moderated by mitigation and relative duration.	(1) limited intrusion.	(1) limited intrusion.	(2) impact moderated by mitigation and relative duration.	(2) impact moderated by mitigation and relative duration.
Wildlife	(3) severe in short-term but long-term benefits.	(1) limited intrusion.	(1) limited intrusion.	(2) severe in short-term but long-term benefits.	(2) severe in short-term but long-term benefits.
Erosion	(2) permanent stabilization at 5 creek crossings offset temporary erosion.	(1) limited intrusion but no long-term improvements.	(1) limited intrusion but no long-term improvements.	(2) permanent stabilization at 2 creek crossings offset temporary erosion.	(2) permanent stabilization at 2 creek crossings offset temporary erosion.
Public Safety	(2) construction in a remote area.	(3) construction in arterial street and residential area.	(3) construction in arterial street and residential area.	(2) construction in residential area and street.	(2) construction in residential area and street.

Table V: Evaluation of Alternatives: Ranking and Rational (Cont.)

Impacts	Alternatives				
	Dry Creek	Mt. Vernon Gravity	Mt. Vernon Force Main	Bluff Gravity	Bluff Force Main
Public Inconvenience	(1) construction in a remote area possible inconvenience to 7 residents	(3) possible inconvenience to 64 residents and businesses	(3) possible inconvenience to 64 residents and businesses	(2) possible inconvenience residents and businesses	(2) possible inconvenience to 15 residents and businesses
Energy Use			long-term use		long-term use
Cost	$	$	$	$	$
Ranking Sum	14	15	19	14	18
Ranking Order	1	2	4	1	3

In EPA's selection of a preferred alternative, two criteria are considered. These criteria are project cost (Total Present Worth) and nonmonetary environmental considerations. When there are no overriding environmental considerations, EPA's normal policy is to select, for Federal funding, the alternative with the lowest Total Present Worth. However, when nonmonetary environmental considerations become a factor in alternative selection these factors must be weighed against increased costs.

EPA has given serious weight to the nonmonetary considerations associated with both the Bluff Street Gravity and Dry Creek Alternatives.

The Dry Creek Alternative would have serious detrimental effects on the ecological setting of both the Dry Creek Basin and the entire City of Wichita. The woodland between the intersection of Mt. Vernon, Bluff Street and George Washington Boulevard represents one of the last remaining areas of a mature streamside habitat in the metropolitan Wichita area. As such the area provides an important and unique terrestrial refuge. The Dry Creek Alternative by virtue of its intrusion through the center of this woodland would result in the loss of a major portion of the woodland for many years.

The disturbance of the Dry Creek woodland must be balanced against the increased cost of and the nonmonetary consideration of public inconvenience and public safety for the Bluff Street Gravity Alternative. However, these nonmonetary considerations are of limited duration and mitigative measures will greatly reduce their impacts. Therefore, it is EPA's decision that the integrity of the Dry Creek wooded area is a valuable resource to be protected. For this reason EPA has chosen the Bluff Street Gravity Alternative as its preference and will only provide Federal funding for this alternative. EPA will require that the City of Wichita amend its grant application to reflect this alternative and the mitigative measures presented in Chapter IX of this Environmental Impact Statement.

CHAPTER VI: UNAVOIDABLE IMPACTS OF THE BLUFF GRAVITY ALTERNATIVE

Aesthetic Values

Incorporation of a mitigative strategy which creates visual barriers to the construction corridor and revegetation of disturbed areas will eliminate most of these impacts. These alternatives will have some unavoidable temporary adverse impact on the aesthetic value of the area.

Disruption of the Semi-Natural Area and Its Associated Wildlife

If construction areas are replanted with plants which will serve as wildlife food and protective cover, most of this impact will be reduced or eliminated. The decrease in tree density and loss of mature trees is, however, an unavoidable impact.

Increased Stream Erosion

Implementation of a site-specific erosion and sediment pollution control plan will greatly reduce impacts during construction. Gabions and riprap at creek crossings will produce a post construction beneficial impact.

Public Inconvenience

An unavoidable impact will exist during times when construction activities are directly in line with access points. During other times, the mitigative measures described in Chapter IX will essentially eliminate this impact.

Public Safety

Although mitigative measures as described in Chapter IX can be employed to reduce the impact of construction on public safety, this impact cannot be completely avoided.

Cultural Resources

The required crossing of Gypsum Creek may impact archeological site 14 SG 527. While redesign and realignment may be sufficient to avoid this site, salvage of artifacts may be required.

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CHAPTER VII: RELATIONSHIP BETWEEN SHORT-TERM USE OF THE ENVIRONMENT AND LONG-TERM PRODUCTIVITY FOR THE BLUFF GRAVITY ALTERNATIVE

Nearly all the previously described impacts associated with this alternative will result from short-term (construction-phase) use of the environment. Long-term impacts (operation-phase) of this alternative are those associated with any intrusion may result in a decrease in the aesthetic and the biological value of the wooded area, this decrease in value will become less severe with each growing season. As such, there is no permanent long-term loss of productivity or environmental quality.

The short-term use of the area for construction will provide a long-term solution to the present problem of sewage back-up into various basements in the basin from hydraulic overloading of the Dry Creek interceptor.

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CHAPTER VIII: IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES FOR THE BLUFF GRAVITY ALTERNATIVE

Resources such as material, manpower, capital and energy required for the construction and operation of this alternative are irreversible and irretrievable. This alternative will not result in the permanent removal of any land from its present use since no aboveground structures are required.

While a decrease in tree density and loss of aesthetic value will extend beyond the construction stage, the resource value of the Dry Creek area will not be permanently lost. Within the operational phase of this alternative, the natural setting of the area will return.

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CHAPTER IX: STEPS TO MINIMIZE HARM TO THE ENVIRONMENT

Mitigative strategies are available for most of the impacts associated with the selected alternative. EPA will ensure that these strategies are carried out by including in them special conditions for Federal Funding.

Noise

Noise generated by construction equipment shall not exceed the levels stated in the General Services Administration, Public Building Service, Guide Specification PBS: 4-01100 April, 1975.

Construction operations shall be limited to between the hours of 7 a.m. and 5 p.m. No work shall be allowed on Saturdays, Sundays or Local, State or Federal holidays.

Aesthetic Values and Description of a Natural Area

Only trees approved for removal on approved construction plans shall be removed or damaged. If trees not designated for removal are removed or damaged the affected landowner shall be compensated at a rate of $50.00 per inch diameter of the tree measured at 3 feet above the ground.

A site specific revegetation plan shall be developed to create a visual barrier to the construction corridor and provide maximum benefit to wildlife.

Stream Erosion

Construction plan shall be submitted to the Chief Engineer, Kansas Division of Water Resources as required by K.5.A 82a-301 to 305a.

A site-specific erosion and sediment pollution control plan, as required by EPA Program Requirement Memorandum 78-1, shall be developed and implemented.

Public Safety and Inconvenience

At least one traffic lane shall be maintained open to traffic at all time.

Access to private driveways and roads shall be maintained at all times except when construction operations are directly in line with an access check.

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During non-working hours all excavation shall be protected from unauthorized interference by: 1) Backfilling excavation or 2) Covering excavation with non-temperable sheeting.

Cultural Resources

The city Archeologist shall be consulted as to archeological sites.

Lines shall be relocated, if technically possible, to avoid any archeological sites identified by the city Archeologist.

The city Archeologist shall be notified at least 48 hours prior to any excavation.

The city Archeologist shall have unrestricted access to the construction site, subject to appropriate Occupational Safety and Health Administration Guidlines and Regulations.

If the city Archeologist finds evidence of significant archeological deposits he/she shall be authorized to terminate construction for a sufficient period of time to allow consultation with the State Historic Preservation Officer.

If deemed necessary by the State Historic Preservation Officer an archeological salvage operation shall be undertaken. Any required salvage will be a grant eligible cost.

CHAPTER X: RESPONSES TO COMMENTS

This Chapter is devoted to responding to comments on the draft EIS. Comments and their required responses have been numbered consecutively, beginning with the written comments and followed by oral comments received at public hearings.

Also included at the end of this Chapter are letters which do not require a response.

THE CITY OF WICHITA

CITIZEN PARTICIPATION ORGANIZATION
CITY HALL — THIRTEENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202
(316) 268-4516

August 8, 1979

Mr. Edward C. Vest, EIS Coordinator
U. S. EPA, Region VII
324 East Eleventh Street
Kansas City, Missouri 64106

Re: Environmental Impact Statement
Dry Creek Interceptor Sewer
Wichita, Sedgwick, Kansas

Dear Mr. Vest:

Citizen Participation Organization Council "F", a neighborhood based advisory council located in southeast Wichita, has long been interested in the proposed Dry Creek interceptor sewer project. Members of the Council have been in direct contact with persons who will be impacted by the project, and have attended numerous meetings and hearings at which it has been discussed, including the August 1 public hearing at St. Christopher's Episcopal Church.

On August 6, the Council discussed the presentations made at the hearing and voted 4-3 to go on record as recommending that the need for the sewer be studied by an independent agency (i.e., a group or firm other than Professional Engineering Consultants) to objectively determine the need for the sewer. The Council also recommended, by a vote of 5-2, that a route other than the Dry Creek route be utilized in the event that the sewer is proven to be necessary.

1 Council members felt that basing an evaluation of the no-action alternative on an analysis conducted by the firm which designed the project is inappropriate and questionable. Therefore, another study, conducted by an independent agency, was deemed advisable. Although the Council did not recommend a specific route for the proposed sewer, a majority of members feel that the Dry Creek route is the least desirable of the five routes addressed in the draft EIS, for environmental reasons.

If further information or clarification of the Council's position is desired, please contact me at (316) 268-4516.

Sincerely,

Gail Williams

Gail Williams
CPO Administrative Aide

GW:lw

THE CITY OF WICHITA

WATER DEPARTMENT
OFFICE OF THE DIRECTOR
CITY HALL – EIGHTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202

July 27, 1979

Mr. Edward C. Vest, EIS Coordinator
U.S. Environmental Protection Agency
Region VII
324 East Eleventh Street
Kansas City, Missouri 64106

Dear Mr. Vest:

Enclosed for the record are comments prepared by City staff and our engineering consultants on the Dry Creek Interceptor Draft Environmental Impact Statement.

We request that these comments be included as a part of the testimony received during the public hearing scheduled in Wichita on August 1, 1979. We are sending these comments in advance of the hearing since at this time we do not intend to present them verbally at the hearing.

During the Wichita City Commission meeting of Tuesday, July 24, 1979, we presented our comments to them and recommended that they adopt a resolution in support of the Dry Creek alignment.

The City Commission, however, declined to take any further action on the project until the public hearing has been concluded. A copy of the minutes of that meeting is attached for your information.

The City staff position is that the Dry Creek Interceptor remains as our first choice since it is (1) less expensive, (2) less disruptive to the neighborhood during construction, (3) is not as hazardous to the public as are the other alternatives and (4) not disruptive to the long term environment.

Very truly yours,

John D. Wynkoop

John D. Wynkoop
Director of Water and
Water Pollution Control

JDW:sd

attachments

cc: E. H. Denton, City Manager (w/attach.)
Dick Linn, City Engineer (w/attach.)
Jim Aiken, Env. Health Director
Mike Schomaker, PEC, (w/attach.)

CITY STAFF AND PROFESSIONAL ENGINEERING CONSULTANTS COMMENTS ON DRY CREEK ENVIRONMENTAL IMPACT STATEMENT PREPARED BY ENVIRONMENTAL PROTECTION AGENCY

The following is a summary of comments with reference to the engineering aspects incorporated into the Environmental Protection Agency's Draft Environmental Impact Statement for the Dry Creek Interceptor for Wichita, Sedgwick, Kansas.

NO ACTION ALTERNATE

We support the Environmental Protection Agency's stand on the "No Action Alternate". The No Action Alternate is not feasible due to the fact that the existing flow capacity of the Dry Creek Sewer is insufficient to transport sewage flows occurring in the basin. In addition, the structural condition is questionable and could lead to line failure.

BLUFF STREET FORCE MAIN AND MT. VERNON FORCE MAIN

We support the Environmental Protection Agency's position that pumping of the wastewater would be extremely expensive and would result in excessive high energy use. Costs projected for maintenance and emergency work required during mechanical failure should be higher than shown.

2 Increased noise levels due to pump station operation and standby power system operation, and exercising were not addressed and should be discussed. Depending upon the type of enclosure provided for the standby power system, noise levels during its operation could reach levels greater than the operation of most heavy construction equipment. These noise levels during its operation would be present within the area on a continuous basis.

3 It should be noted that pumping is an intermittent operation. That is wastewater is stored for a short period of time and then pumped to a receiving stream or receiving sewer. Thus pumping during a wet weather period could artificially create a surcharing condition in the receiving sewer. Thus pumping would not actually solve the problem, but would merely shift the problem to a downstream area.

4 It should also be pointed out that the Mt. Vernon Pumping Alternate would be discharging wastewater into a receiving sewer system which does not have design capacity to accommodate the flow.

BLUFF STREET GRAVITY ALTERNATE

5 In reference to this alternate, the following items should be discussed within the E.I.S. to provide a better understanding of the work to be completed along Bluff Street.

Sanitary sewer construction along Bluff Street:

1. Sanitary sewer trenching depths will range from 21 feet to 17 feet in depth.
2. This type of construction would result in the probable entire removal of Bluff Street and Kincaid Street.
3. A large volume of soil would have to be excavated from the trench and either hauled directly from the site or stored along the right-of-way complicating the construction limits.

4. Several utilities currently exist in the existing Bluff Street right-of-way (e.g. 4" gas line along the east side with five crossings, telephone along the west side and 8" waterline along the east side.)

5. To provide adequate public safety along Bluff Street, Bluff Street would have to be barricaded shut during construction. This would force school children to select alternate pedestrian routes to school which may have a direct bearing on public safety.

6. Barricading Bluff Street and Kincaid in conjunction with complete removal of Bluff Street and Kincaid will result in loss of access to residents along Bluff Street, Kincaid, Bluff Court, Clark Court to park outside of the construction area and walk to their homes.

7. A closing of a street by barricading and the removal of the street obviously presents a problem for emergency vehicle access.

6 The following is in reference to the engineering aspects for the placement of the 10" slip liner in the existing 21" Dry Creek Sanitary Sewer.

1. Prior to the installation of the 10" slip liner, the five existing creek crossings should be modified or reconstructed to protect the conduit from stream bed erosion which could result in undercutting the pipe and washing out the crossing.

2. Of the four lateral sewer connections to the existing 21" Dry Creek sewer main, three laterals need additional construction work in conjunction with the modification of the existing manholes. The first modification would be major construction of creek bank protection to prevent any additional bank erosion which would result in eventual pipe damage to one lateral. The second modification would be to replace broken pipe for approximately 10 feet upstream from an existing manhole on a second lateral. The third modification would be the abandonment of the third lateral which has severe structural damage and reconnection of house services to the main line.

3. As pointed out in the E.I.S., access will be required for the reconnection of services to the 10" slip liner. This will mean seven separate excavations to locate and make the house service connections.

4. Each of the seven manholes which exist along the 21" main should be replaced. It may be possible that the second manhole south of Mt. Vernon could be abandoned. It currently is exposed on all sides to the Dry Creek stream channel.

The work outlined above consists of approximately 20 separate locations where work functions must be completed within the Dry Creek corridor. This type of work will result in damage to the existing environment.

MT. VERNON GRAVITY SEWER ALTERNATE

We support the Environmental Protection Agency's position that the Mt. Vernon Gravity Sewer Alternate is expensive and would result in placing wastewater in a main sewer outfall line which does not have design capacity. In addition, utilities along the Mt. Vernon Street right-of-way are extensive enough to nearly eliminate any available corridor for installation of a sanitary sewer. Construction in this area would likely result in the closing of major parts of Mt. Vernon. This would result, obviously, in major problems with public safety and public inconvenience. In addition to a sewer line being placed in Mt. Vernon, this alternate also calls for the installation of a 10" slip liner in the existing Dry Creek Sanitary Sewer. The same engineering problems would exist with the installation of the slip liner in the Dry Creek area as outlined for the Bluff Street Alternate above.

DRY CREEK SANITARY SEWER ALTERNATE

We support the Environmental Protection Agency's position concerning the environmental impact resulting in the installation of the 36" diameter sanitary sewer down along the Dry Creek corridor.

7

COST ESTIMATES FOR ALTERNATES

In general, we support the cost estimates as presented for the alternatives in Appendix 2, except for the following discrepancies.

We believe that the cost for installing the 36" reinforced concrete pipe for the PVC liner down Bluff Street at a depth of between 21 and 17 feet will have a higher unit cost than the installation of the same pipe in a maximum of 14 foot deep trenches in the Dry Creek area. We also believe that the quantity estimated for pavements removal and replacement should be expanded to include the entire removal of Bluff Street which would add approximately 4,000 square yards of pavement removal and replacement. Also included in the Bluff Street Gravity Alternate, should be the cost for replacement of five creek crossings, the cost for erosion protection consisting of 380 cubic yards of gabions and 200 square yards of rip rap, and the cost for seven-house service reconnections to the 10" slip liner. Inclusion of these cost items would increase the construction cost by $203,950.00, from $755,090.00 to $959,040.00. This increase in cost is outlined in the attached table.

The cost estimate for the Bluff Street Force Main should be modified to include a cost for modifying the five creek crossings, installing erosion protection consisting of 380 cubic yards of gabions and 200 square yards of rip rap, and reconnection of seven-house services. The cost to complete these items of work is estimated to be $60,600.00. This would increase the total construction cost from $886,690.00 to $947,290.00

The construction cost estimated for the Mt. Vernon Gravity Alternate should be modified to include the increased cost to install the 36" reinforced concrete pipe with the PVC liner at greater depths, the five creek crossings in the Dry Creek area, consisting of 380 cubic yards of gabions and 200 square yards of rip rap, and the reconnection of seven-house services. The cost estimated for this additional work is $126,400.00 which would increase the total construction cost for the Mt. Vernon Gravity Alternate from $1,263,400.00 to $1,389,800.00

The cost estimate for the Mt. Vernon Force Main Alternate should be modified as outlined for the Bluff Street Force Main Alternate. This would increase the total construction cost estimate for the Mt. Vernon Force Main by $60,600.00 from the estimated total cost of $1,041,000.00 to $1,101,600.00.

Using these increased construction costs, and assuming that the costs estimated by the Environmental Protection Agency for design, contingencies, interest during construction, and original design will remain the same. A cost effective analysis should be revised as shown in the attached table. By review of that table, it can be seen that the analysis indicates that it will cost an additional $349,986.00 to build the Interceptor sewer in Bluff Street. The actual increase cost to the taxpayers of the City of Wichita, assuming a 75 per cent grant for those items which are eligible under the Environmental Protection Agency Grant Program, is $93,969.00.

REVISED
COST EFFECTIVE ANALYSIS

(7% INTEREST)

Cost	Interest Factor	Dry Creek	Mt. Vernon Gravity	Mt. Vernon Force Main	Bluff Gravity	Bluff Force Main
Capital Cost	1.00	786,237	1.646,080	1,342,917	1,149,441	1,157,220
Operation and Maintenance	10.594	0	0	272,477	0	101,172
Salvage Value	0.2584	- 50,555	- 120,957	- 51,008	- 63,773	- 37,684
Total Present Worth		735,682	1,525,023	1,564,386	1,085,668	1,220,708
City of Wichita's Share of Capital Cost		202,310	434,913	349,692	296,279	296,940

TABLE A: BLUFF GRAVITY AND ADDITIONAL COSTS

Quantity	Unit	Item	Unit Cost	Total	Salvage
2,335	LF	36" CRP-PVC Liner (Added Excavation Depth)	$10/LF	23,350	---
5	EC	Creek Crossing Replacements	4,000/EC	20,000	---
4,000	SY	Pavement Removal and Replacement	$30/SY	120,000	---
380	CY	Gabions	$75/CY	28,500	---
200	SY	Rip Rap	$50/SY	10,000	---
7	EC	House Service Reconnections	$300/EC	2,100	---

	$203,950
EIS COST ESTIMATE	755,090
TOTAL REVISED COST	959,040
DESIGN	54,500
CONTINGENCIES	75,509
INTEREST	11,892
ORIGINAL DESIGN	48,500
TOTAL CAPITAL COST	$1,149,441

TABLE B: BLUFF FORCE MAIN - ADDITIONAL COSTS

MT. VERNON FORCE MAIN - ADDITIONAL COSTS

Quantity	Unit	Item	Unit Cost	Total	Salvage
5	EC	Creek Crossing Replacements	$4,000/EC	$20,000	---
380	CY	Gabions	75/CY	28,500	---
200	SY	Rip Rap	50/SY	10,000	---
7	EC	House Service Reconnections	300/EC	2,100	---
				$60,600	

BLUFF FORCE MAIN EIS COST ESTIMATE	$886,690
BLUFF FORCE MAIN ADDITIONAL COSTS	60,600
TOTAL REVISED COST	947,290
DESIGN	62,500
CONTINGENCIES	88,689
INTEREST	10,241
ORIGINAL DESIGN	48,500
TOTAL CAPITAL COST	$1,157,220
MT. VERNON FORCE MAIN EIS COST ESTIMATE	$1,041,000
MT. VERNON FORCE MAIN ADDITIONAL COSTS	60,600
TOTAL REVISED COST	$1,101,600
DESIGN	70,500
CONTINGENCIES	104,100
INTEREST	18,217
ORIGINAL DESIGN	48,500
TOTAL CAPITAL COST	$1,342,917

TABLE C: MT. VERNON GRAVITY - ADDITIONAL COSTS

Quantity	Unit	Item	Unit Cost	Total	Salvage
6,580	LF	36" CRP-PVC Liner (Added Excavation Depth)	$10/LF	$65,800	---
5	BC	Creek Crossing Replacements	4,000/EC	20,000	---
380	CY	Gabions	15/CY	28,500	---
200	SY	Rip Rap	50 SY	10,000	---
7	EC	House Service Reconnections	300/EC	2,100	---
				$126,400	

EIS COST ESTIMATE	1,263,400
TOTAL REVISED COST	1,389,800
DESIGN	70,500
CONTINGENCIES	106,090
INTEREST	31,190
ORIGINAL DESIGN	48,500
TOTAL CAPITAL COST	$1,646,080

2 OF 4

PB80

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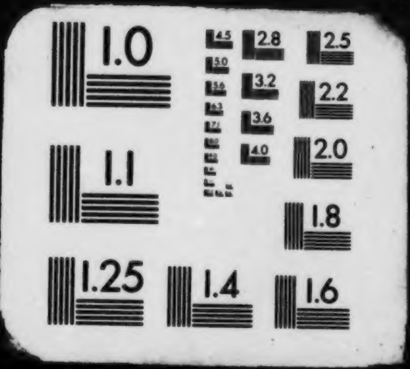
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2.5
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3.2
2.2
6.3
3.6
7.1
4.0
2.0
1.1
1.8
1.25
1.4
1.6

DIRECTORS
. O. KNOP, P.E.
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. D. PLETCHER, P.E.
. D. MIDDLETON, JR., P.E.
K. R. HORNER, P.E.
D. E. MALTBIE, P.E.
. D. SCHOMAKER, P.E.

**PROFESSIONAL
ENGINEERING
CONSULTANTS**
PROFESSIONAL ASSOCIATION

August 9, 1979

Mr. Edward C. Vest
Environmental Impact Statement Coordinator
U. S. Environmental Protection Agency
Region VII
324 East Eleventh Street
Kansas City, Missouri 64106

Dear Mr. Vest:

B

We request respectfully that our firm's name, Professional Engineering Consultants, P. A., be removed from the list of "Principal Preparers" outlined on page "v" of the Summary. Since we did not have principal review of the "Draft" document prior to public distribution, we do not feel qualified to be an official preparer. We were also not consulted on revisions to cost data made by EPA Staff nor requested to be available when interviews were held with a contractor about construction operations.

There is one critical point in the Draft EIS which was only given a cursory comment; trenching work in Bluff Street and Mt. Vernon. We agree that installation of a force main could be restricted to one lane since it would be installed at relatively shallow depths. However, to imply that the trenching operations for gravity lines in either one of these streets could be restricted to one lane needs considerable clarification. It was stated at the Public Hearing that this was substantiated by a Contractor and that the City Staff was proposing removal of the entire street simply to gain support for their position.

A

A separate review was undertaken with the three major contractors who perform sewer work in the Wichita area which included the contractor referred to at the Public Hearing.

The following was the general consensus of all three contractors concerning the gravity sewer installation along Bluff:

1. Continuous sheeting would be required to maintain vertical slopes and maintain one lane of traffic.
2. The trench could be held to eight feet in width.
3. At least one-half the street would have to be removed (13 feet plus curb and gutter).
4. Continuous sheeting is without question a very expensive method of installing a sanitary sewer.

1440 EAST ENGLISH
WICHITA, KANSAS 67211
(316) 262-2691

5. Maximum per day installation of sewer was estimated at 25 feet which did not include backfill or pavement replacement.

6. They agreed that pulling a trench box (or shield) and laying the side slopes back was the most economical even considering pavement removal and replacement.

9

Relative to these comments, EPA's Draft EIS stated that only 8' of pavement would be required for removal. All three contractors agreed that as a minimum one-half the street would have to be removed. ($35,000 ± increase). Two contractors stated that continuous sheeting would cost between $75 and $125 more than the cost to pull a trench shield down Bluff ($127,500 ± increase). It was also noted that installing a gravity line in Bluff could not be accomplished for the same unit price as shown in the EIS for the Dry Creek alignment due to deeper excavation, truck removal of excavated material more sand backfill, etc.. This increase was estimated at between $15 and $25 per foot.

Each contractor agreed that due to the deeper excavation required for Bluff and Mt. Vernon that the work would be under the scrutiny of the OSHA inspectors. And since continuous sheeting would be a more dangerous construction technique, additional costs would have to be assigned to its installation.

Each contractor said the preferred method would be to pull a trench box and lay the side slopes back. At 21 feet deep with an 18 foot average depth this would mean that with a 4 to 5 foot vertical trench for the pipe that all of the street would be removed.

We hope you will take these comments under consideration during preparation of the final EIS for Dry Creek.

Your continued cooperation in this matter is sincerely appreciated.

Very truly yours,

PROFESSIONAL ENGINEERING CONSULTANTS, P. A.

Michael D. Schomaker, P. E.
Project Engineer

MDS:cn

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
AREA OFFICE
TWO GATEWAY CENTER, 4TH. AND STATE
KANSAS CITY, KANSAS 66101

REGION VII
Room 300 Federal Office Building
911 Walnut Street
Kansas City, Missouri 64106

August 1, 1979

IN REPLY REFER TO:

Mr. Edward C. Vest
U.S. Environmental Protection Agency
324 East 11th Street
Kansas City, Missouri 64106

Dear Ed:

This office has received your request for comments on the Draft Environmental Impact Statement for the Proposed Dry Creek Interceptor Sewer in Wichita, Kansas. Based on our staff reviews, we have found no apparent adverse impact on HUD housing or community development activities within the project area.

From the report material, we are sumitting two comments of general
interest which could have a future impact on housing and community
10 development. First, the report indicated air quality data for 1975-
1977 but did not make any projections on air quality for the project
area. It might be beneficial to know how this area rates in conjunction
with the State Implementation Plan being prepared for Wichita. Second,
the report discusses noise levels relating to traffic in the area. Our
11 files indicate that part of the project area lies within the noise impact
area delineated by the U.S. Air Force in their AICUZ study for McConnell
AFB dated June, 1978. It might be beneficial to include a discussion of
this impact in your report section on noise.

Thank you for the opportunity to comment on this matter.

Sincerely,

Lance

Lance Long
Environmental Officer

HOWARD H. BOYS
3415 E. SKINNER
WICHITA, KANSAS 67218

August 15, 1979.

Dr. K. Camin, Regional Administrator
Environmental ProtectionAgency, Region, VII
324 East Eleventh St.
Kansas City, Missouri 64106

SUBJECT: (Draft Proposed 4/18/79) ENVIRONMENTAL IMPACT STATEMENT,
DRY CREEK INTERCEPTOR SEWER, WICHITA, KANSAS.

COMMENTS ----- CONCLUSIONS ----- RECOMMENDATIONS

PART A. Sewer Sizes/Possible Oversizing.

I. Sanitary sewers feeding to the immediate vicinity of the intersection of Mt. Vernon and Bluff are (1) 30"Dia. line accross the L.W.Clapp Memorial Park (2) a 10" Dia. line flowing from the North down Bluff to Mt. Vernon and (3) the 8" Dia. line empting Westward into the present 21" Dry Creek line at a point approximately 240' So. of the Mt. Vernon ℄. (Reference:P.E.C. Drawing Page 9 of 17, Job 77282-1) --- all together totals 835.67 sq. inches in cross sectional area.

II. The total cross sectional area of the present sewers FLOWING AWAY from the above intersection of Mt. Vernon and Bluff is 798.75 sq. in.and consists of (1) the 24" Dia. Mt. Vernon line and (2) the exsisting 21" line in Dry Creek.
Therefore this OUTPUT area is short of the INPUT area by 36.92 sq. ins. or short capacity by 4.4% NOW.

12

III. It has been computed that a sewer 1.1" larger in diameter than the present 21" line or a total of 22.10" Dia. would balance the OUTPUT area with the INPUT area, at the corner of Mt. Vernon and Bluff. The next larger size standard pipe is 24" Dia. which would provide 8.3% surplus OUTLET area.

NOW FOR THE QUESTIONS

(a) If a 24" line down Dry Creek would provide 8.3% surplus capacity, what is the justification for using a 36" Dia. line which is 50% larger in diameter and providing an area surplus of 75.9% ???

(b) Still using the 24"D. line in Mt. Vernon and a 10"D. slip-liner in Dry Creek --- a 36" Dia added to the system and placed in Bluff --- the area surplus now becomes 85.3%

In other words, the above system (b) with the new 36"Dia. line should be able to handle 85.3% more sewage than the recently installed 30" line across L.W. Clapp Park together with the 10" and 8" Bluff lines, could possibly feed it.

Comments on Dry Creek Sewer E.I.S. (Cont.)

COST INCREASE FOR 36" LINE

12 It is obvious that a 36" line being 50% larger in diameter than a 24"line, might require as much as 50% more material to manufacture the pipe. This would vary for other pipe sizes and for the type of material used. The point is that the larger the pipe the larger the trench, the more dirt disposal is required, more bed material and more backfill is required, all of which increases the cost. So the pipe size selected is a key factor in costs.

PART B. Principal Preparers.

13 I The use, as a preparer, of the engineering firm that has already made the present design proposal, might open the question of their being in a more favored position to bid on a new design, thus a conflict of interest. However, I have personally observed them as being most co-operative with property owners in working out problems with the new sewer design.

PART C. Outdated and Incomplete Information.

14

I. Oliver and Kellogg streets have long ago ceased to be called "lanes".

II Bleckley street North of Kellogg is a major water course for run-off from as far North as 20th street, and might be properly shown as such.

III The diversion channel of Dry Creek that has been added from the Dry Creek Pawnee Bridge South-South-East to Gypsum Creek is not shown. Dry Creek is now blocked off at the Bridge and no longer carries any upstream run-off.

IV The straightening of the Gypsum Creek channel at various points with the removal of all trees and brush affects the wildlife. The locations of these straightenings is not shown on Figure 1 or the related maps.

PART D The E.I.S. Hearing.

I It appeared to this writer, that the opposition to the Dry Creek sewer route was well planned and orchestrated and built around the position of the individual making the very lengthy statement. A statement made by a young lady was in essence that if the sewer route goes down Dry Creek, the area will look like the area of Planview that has been channelized by the Flood Control Dept. This is simply not the case and is a misleading statement.

II The question of whether the present sewer is actually damaged and needs to be replaced at all. Sometimes this point is raised by one attending their first meeting but usually not. Perhaps it is time for a representative of the neighborhood Dry Creek property owners and a member of the Area "F" C.P.O. to go to the City building and view the Video Tapes taken of the inside of this sewer and be able to relate to others what they actually saw. I understand that this equipemnt for viewing the tapes is not portable.

Comments on the Dry Creek Sewer E.I.S. (Cont)

PART D. The E.I.S. Hearing (Cont)

III It is my understanding that the E.R.A.B. comments were a result of their study addressed only the final effects on the trees, vegetation, wildlife etc. and did not cover the costs, safety, construction noise, inconvenience etc. If this is correct then this input should be evaluated only in certain areas.

PART E. TABLE V: Evaluation of Alternates (Pages 77-78)

15

Noise: Since either the Mt. Vernon or the Bluff routes would entail extensive breaking of pavement, trenching, actual sewer placement, backfill and repaving, I would add at least .5 to each of the four values.

Public Safety: I would reduce the Dry Creek score from 2 to .5 due to the isolation of the construction work. I would increase the score on Bluff street to 2.5 for two reasons -- first on the basis that ALL residents West of Bluff and on Kincaid will have to cross the ditch while it is under construction and second: all of the residents East of Bluff can no longer travel Bluff but must go up to two blocks East to Crestway to get out. Traffic will be greatly increased.

Inconvenience: For the same reason as above many residents, NOT just 15, will have to drive east, as much as two blocks then North before they can get out onto Mt Vernon and to down town. I would increase the Bluff score to 3.

Final Ranking Sum Total :

Dry Creek	12.5
Bluff Gravity	16.0
Mt.Vernon (G)	19.5

PART F. CONCLUSIONS

I That the area of Dry Creek in question cannot forever be considered as a natural forest and kept exclusively so in the middle of a growing city.

II That some parts of the creek bed have become unsightly from dead limbs and from trash carried in by rain water run-off and are so overgrown that they provide a refuge for intruders who would wish to burglarize homes of the residents

III That the areas where the residents have cleaned up their property, planted shrubs and grass have become beautiful. It could be made so thoughout this area. I believe that most residents except perhaps two, would really like to do this.

IV That the Dry Creek Association has changed its position and at present is making no effort to compromise with the City and discuss informally how the creek path can best accomodate a sewer replacement with a water management plan combined with general beautification.

V That the City has not at its last presentation, altered its position of insisting on installation of a 100 year flood channel.

PART F. (Cont)

VI That no group has prepared sketches as to how the area might be beautified with gently curving "S" bends surfaced with low sloping "Gabions" Fabri-Form or other bank protection systems. I feel that few if any realize what a great opportunity is before them and few understand what methods are available for beautification.

VII This has become a "SNAIL DARTER" issue.

PART G. RECOMMENDATIONS.

I That the City invite representatives to view the Video tape pictures of the damaged interior of the 21" Dry Creek Sewer.

II That the City reevaluate the pipe sizes that have been selected for the various alternates and openly explain the reasons for such selections.

III After reviewing all of my records and notes, studying the aerial photographs, walking and photographing the area both in winter and in summer, studying the specifications and drawings in detail, combining certain drawings to make a print covering the full length of the proposed line and construction easements-----

I would have to conclude that the preferred route is down Dry Creek in preference to the other alternates offered and in the years down the road the residents would agree

However, even at this late date, I feel that much would be gained in a last compromise joint review of the sewer and surface water problem. Even to the consideration of placing the sewer directly under the bottom of a modified creek channel or its slopping sides.

This might make possible constructing both systems at once and at perhaps greatly reduced costs.

Respectfully submitted,

Howard H. Boys.

Howard H. Boys.

WICHITA STATE UNIVERSITY

Department of Biological Sciences

WICHITA, KANSAS 67208
PHONE (316) 689-3114

August 4, 1979

Mr. Edward C. Vest
Environmental Protection Agency
EIS Coordinator
324 East 11th Street
Kansas City, MO 64102

Dear Ed:

In regard to the Dry Creek EIS, several corrections seem appropriate:

16 On page 34, Table III, the upper right block should read trees/acre (not area) and area E does not appear on the map or the original. I think it refers to total easements (permanent, temporary, and drainage).

17 The third paragraph on page 54 is misleading. On August 1, 1979 a tree census was taken from the end (west) of Kinkaid to George Washington, an area of approximately 12,400 square feet or 0.3 acres. Fifty trees were encountered greater than 4.5 inches in diameter that probably would have to be removed in construction of the Bluff Street alternative. Thirty four or 68% of these are considered mast trees or food trees: Hackberry (21), Osage Orange (7), Black Walnut (3), Red Mulberry (2) and Kentucky Coffeetree (1). Twenty three of the 50 trees in the Kinkaid to Washington sector would also be removed in the construction of the Dry Creek alternative. The 16 remaining non-food trees are mostly Elm.

18 My estimates of acreage and tree numbers (p.46) are higher than Normans, because I considered all the trees in the total easements (276 trees and 2.7 acres) as having high potential for distruction since several trees not in the permanent easement are field marked for removal. This puts the percentage of total riparian forest removal at 27 to 30 percent rather than 13.5% (page 46 EIS). Many trees field marked for removal are well outside the construction corridor for the Dry Creek alternative shown in figure 17, page 47.

Thank you for the opportunity to comment on the draft EIS.

Sincerely,

Donald A. Distler

Donald A. Distler
Assoc. Professor

[illegible] cy [illegible]

E 13
APW

United States Department of the Interior
OFFICE OF THE SECRETARY
MISSOURI BASIN REGION
DENVER, COLORADO 80225

In Reply Refer to:
ER 79/598

August 13, 1979

RECEIVED
AUG 15 1979
RCAD
REGION VII
EPA

Kathleen Q. Camin, Ph.D.
Regional Administrator
U.S. Environmental Protection Agency Region VII
324 East Eleventh Street
Kansas City, Missouri 64106

Dear Dr. Camin:

In response to your letter of June 18, 1979, requesting comments on the Draft Environmental Impact Statement for the proposed Wichita - Dry Creek Interceptor Sewer, the Department of Interior offers the following comments.

Based on our review of the Draft Environmental Impact Statement, we believe there are better alternatives than the proposed Dry Creek Interceptor. For example, the Bluff Gravity Alternative would cause less environmental damage than the Dry Creek proposal and yet is comparable in cost. However, if for some reason the Bluff Gravity Proposal is found unsuitable, our second option would be the original proposal of running a new 36-inch sewer along Dry Creek. In either case, the environmental damage caused by construction of the sewer would occur for only a short period and in the long run, selective planting of the disturbed areas could help improve the environment.

19 The final statement should provide a more thorough discussion of the results of the archeological surveys which have been done. A copy of recent comments by the State Historic Preservation Officer should also be included.

20 The proposed Dry Creek Interceptor Alternative would pass through an attractive natural area. Section 13 of the Clean Water Act of 1977 makes your agency responsible for insuring "that the applicant has analyzed the potential recreation and open-space opportunities in the planning of the proposed treatment works." We suggest that this recreation analysis be undertaken in cooperation with appropriate local recreation planners, who are most able to evaluate the recreation, open space, or recreation access opportunities which may be associated with interceptor line rights-of-way.

21 The statement would be strengthened by assessing impacts of the present Dry Creek interceptor on ground water. The deteriorating, cracked condition of the sewer (p. 1), the very high infiltration/inflow (p. 6), and the commonly overloaded condition of the interceptor suggest strongly that exfiltration is probably contaminating ground water.

22 The EIS does not contain a discussion of federally endangered species. Section 7(c) of the Endangered Species Act, 87 State. 884, as amended, requires your agency to ask the Secretary of the Interior, acting through the Fish and Wildlife Service, whether any listed or proposed endangered or threatened species may be present in the area of each Federal construction project. This requirement applies to projects where no contract for physical construction had been entered into and for which no physical construction had begun as of November 10, 1978. Your agency's request should be sent to the Regional Director, U.S. Fish and Wildlife Service, P.O. Box 25486, Denver Federal Center, Denver, Colorado 80225.

If the Fish and Wildlife Service advises that such species may be present in the area of the project, your agency is required by Section 7(c) to conduct a Biological Assessment to identify any endangered or threatened species which are likely to be affected by the construction project. The assessment is to be completed within 180 days, unless a time extension is mutually agreed upon. No contract for physical construction may be entered into and no physical construction may begin until the Biological Assessment is completed.

In the event the conclusions drawn from the Biological Assessment are that listed endangered or threatened species are likely to be affected by the construction project, your agency is required by Section 7(a) to initiate the consultation process.

With the above exceptions, the Department of Interior finds that the draft statement adequately addresses the impacts of the proposed action.

Sincerely yours,

John E Raybourn

JOHN E. RAYBOURN
Regional Environmental Officer

Kansas State Historical Society
120 West Tenth • Topeka, Kansas 66612 • 913/296-3251

August 3, 1979

Mr. Edward C. Vest
Environmental Impact Statement Coordinator
United States Environmental Protection Agency
Region VII
324 E. 11th St.
Kansas City, Missouri 64106

Dear Mr. Vest:

In regard to the draft Environmental Impact Statement for the Dry Creek Interceptor, Wichita, Sedgwick, Kansas, we would offer the following comments concerning the proposed project and its possible impact upon significant archeological sites and/or materials in the area:

From the viewpoint of archeological potential, there are actually two elements in this project. First is the Dry creek alternate itself, and second is the Bluff Gravity and Bluff Force Main. These latter alternatives would involve a portion of the Gypsum creek drainage. This involvement was shown graphically in the E.I.S. but was not stated as such.

23 The initial archeological survey by Boydston (1978), detailed his work along the Dry creek area and the proposed line that would extend from Pawnee avenue to Whitney lane on Gypsum creek. The area along Dry creek yielded some materials which implied that sites would be present, but none were identified. The Gypsum creek area was noted to contain known archeological sites and the potential for others of significance.

The draft E.I.S. as written identifies the work along Dry creek, but does not describe any possible impact to the Gypsum creek area and does not present the archeological survey which was made in regard to the Bluff Gravity and Bluff Force Main alternatives.

Since the initial survey, (1978) along Gypsum creek, other archeological sites have been found and recorded which would appear

JOSEPH W SNELL Executive Director
ROBERT W RICHMOND Assistant Executive Director
PORTIA ALLBERT Librarian
EUGENE D DECKER State Archivist
MARK A HUNT Museum Director
THOMAS A WITTY State Archeologist
JACK W TRAYLOR Curator of Manuscripts
FORREST R BLACKBURN Director of Publications
RICHARD D PANKRATZ Director, Historic Preservation Dept
LARRY JOCHIMS Research Historian
M D KIDWELL Fiscal Officer

NYLE H MILLER Executive Director Emeritus
DGAR LANGSDORF Executive Director Emeritus

OFFICERS President Philip H Lewis Topeka, 1st Vice-President, Sr M Evangeline Thomas Salina 2nd Vice-President William E Unrau Wichita, Secretary Joseph W Snell Topeka, Treasurer Robert W Richmond, Topeka

EXECUTIVE COMMITTEE Clifford R Hope Jr Garden City; Wilford Riegle, Emporia; Jane R Robison Dodge City, A Bower Sageser, Manhattan, William H Seiler, Emporia, Helen L Smith, Colby; Floyd R Souders, Cheney, Arthur J Stanley Leavenworth Calvin Strowig Abilene

to lie close to the proposed construction area. This information was included in an A-95 response dated July 25, 1979, from our office, which specifically made reference to site 14SG527.

The recommendations made by the city archeologist in his 1978 report, requested that monitoring be conducted at times when excavations are taking place and that he have the authority to halt work should material be exposed.

23 In response to a citizen's concern about the omission of specific Gypsum creek references and potential archeologic significance of sites in the area, the State Archeologist, Tom Witty, telephoned Norman Crisp of your agency. During the conversation, Mr. Crisp stated that he was aware of the sites and the recommendations of the city archeologist and he outlined the procedures to be followed. These included having the archeologist present at the time of the actual staking of the project line and at times of new excavations. As described, these procedures would be satisfactory, and it would appear that an effort was being made to meet the necessary guidelines, regulations and laws concerning the protection of archeological sites.

It would appear; therefore, that the draft E.I.S. for the Dry creek project as a document is incomplete in relating the actual project impacts and planned activities to identify or otherwise limit the impacts upon significant archeological sites and materials. We suggest that the final draft identify more precisely the areas of impact and the reported potential for archeological sites be presented. Procedures that would identify and make possible the preservation of significant archeological sites and/or materials, if any, which might be in the area of impact should also be included.

Sincerely,

Joseph W. Snell
Joseph W. Snell
Executive Director

JWS:TAW:bn

cc: Wichita City Commission

AASCK

Dedicated to the
preservation of
Kansas prehistory

July 12, 1979

United States
Environmental Protection Agency
Region 7
324 East Eleventh St.
Kansas City, Mo. 64106

ATT: Norman Crisp, Kathleen Camin, and Edward C. Vest

24 The draft Environmental Impact Statement on the Dry Creek Interceptor, Wichita, Sedgwick County, Kansas states the Dry Creek, the Bluff Gravity, and Bluff Force Main alternatives as all including a 24 inch gravity sewer connection between Pawnee Avenue and Whitney Lane. This proposed part of the Dry Creek Interceptor system crosses Gypsum Creek to connect with the existing 42 inch War Industry Sewer. (See Figure 14, p. 38 and Figure 16, p. 41)

The current EIS contains no environmental impact or mitigative measures about the effect of the Dry Creek Interceptor system on Gypsum Creek. The proposed 24 inch gravity sewer connection between Pawnee Avenue and Whitney Lane will have direct impact on a known archaeological site (s) located on Gypsum Creek between George Washington Blvd. and Roosevelt Street.

The scope of the EIS concerning the Dry Creek Basin is impressive. However, the failure of the EPA to recognize possible impact on Gypsum Creek cannot be ignored. It is my conclusion that the draft statement, as presented, is not satisfactory.

Sincerely,

Patricia E. Nelson

Patricia E. Nelson
Archaeological Association
of South-Central Kansas

CC: EPA, KC
EPA, DC
M. Stein, Kansas State Historical Society
G. Miller, Dry Creek Association

AASCK

Dedicated to the
preservation of
Kansas prehistory

August 1, 1979

United States
Environmental Protection Agency
Region VII
Kansas City, Missouri 64106

To: Norman Crisp, Kathleen Camin, and Edward C. Vest

To satisfactorily resolve our concern and to meet EPA requirements, environmental and mitigative measures must be accounted for on all aspects of the Dry Creek Interceptor System. The draft EIS does not contain any reference to mitigative measures of adverse impact on known cultural resources present in Part B of the construction plans. This refers to alternative routes a, d, and e of the draft EIS.

25

AASCK recognizes the EPA did seek information provided by archaeological surveys covering this project, however, the reports prepared by Roger Boydstron (March 1978) were under difficult climatic conditions and could not include current information.

Due to erosion, two archaeological sites, 14SG527 and 14SG528, were identified after the dated report provided by the City Archaeologist's office. 14SG 527, one of the two latest sites, lies within direct impact of the 1200 foot 24 inch sewer extension which crosses Gypsum Creek south of Pawnee and west of George Washington Boulvard. As recent as one week ago, a third site was located east of George Washington Boulvard and west of Oliver.

Because of these latest finds, it is the opinion of AASCK that Gypsum Creek, extending from the Canal Route to Mt. Vernon is likely one area of continous occupation. Indications are that this is a major settlement area for pre-historic people with occupation strung out, along, and with the potential of extending into the surrounding area. Cultural materials along Gypsum Creek did not appear until after earth moving acitivities were done by the Flood Control.

Due to urbanization of the Dry Creek impact area, and the existence of deeply buried sites adjacent to this area, archaeological indications are not possible to see from surface surveys.

Previous archaeological investigations (Summer and Fall of 1978) along the disturbed section of Gypsum Creek has identified 14SG515 as a possible village where pottery making people lived. A radio-carbon of 1010 AD ± 75 years confirms the significance of this archaeologically rich area. East of this site is 14SG528, a bison kill site of as yet undetermined age. Even further east is 14SG527, a second ceramic bearing site which suggests more habitat.

The EPA has received archaeological surveys, and a letter from AASCK suggesting precautionary measures to control adverse impact of cultural resources. As of today, the information intrepreted by the EPA is out-of-date.

Effective mitigative measures are necessary for Part A and Part B of the construction plans. The EPA's own admission is "a potential for archaeological sites" on Dry Creek. It is a fact for Part B, and impact must be recognized, not ignored, for Part A.

25

Effective mitigative measures to alliviate damage or destruction of cultural resources that are irreplaceable must be a part of the EIS. AASCK's concern can be resolved in the following:

1. As part of the total monetary cost/benefit (in the budget), provisions must be made for a professional archaeologist to be present during all construction phases of Part A and Part B of this project. This must include the archaeologist being a part of the staking team, and present during any earth moving.

2. Prior to the initial day that construction begins, three archaeological surveys, spaced 90 day, 60 days, and 30 days before earth moving begins, must be conducted to check for new evidence of cultural resources. This applies to both Part A and Part B, or a total of six surveys.

3. The professional archaeologist must have the right to halt construction for a limited time (from 1-60 days or any combination of and as many times as deemed proper) to identify, preserve, and recover cultural resources when in his/her opinion it is necessary.

4. Budget monies must extend and include provisions for a field (support) staff to facilitate recovery of cultural materials as quickly as possible. Further monetary provisions must be available for preservation and intrepretation of any cultural materials found; with this information made available to the general public. 25

If the EPA considers AASCK's recommendations as unnecessarily stringent, then consult professional archaeological opinion. A list for the EPA's benefit was provided in the December 8, 1978 ASSCK letter. Since this EIS is a draft statement and will be revised, AASCK will abide and respect a professional archaeologist's recommendations over its own statement, but AASCK will not accept any statement made by the EPA concerning cultural resources pertaining to the Dry Creek Interceptor Project.

Sincerely,

Patricia E. Nelson

Patricia E. Nelson
President
Archaeological Association
of South-Central Kansas

CC: EPA/KC
EPA/DE
Kansas State Historical Society: M. Stein and T. Witty

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August 1, 1979

Dr. Kathleen Q. Camin, Regional Administrator
Region VII, U.S. Environmental Protection Agency
324 E. 11 Street
Kansas City, MO 64106

Re: Environmental Impact Statement for the Dry Creek Interceptor Sewer Project

Dear Dr. Camin:

26 We, the undersigned, agree with that portion of the EIS that confirms that the Dry Creek Alternative would have the greatest impact on the asthetic and wildlife values of the area and, that the Dry Creek area supports what is probably the most diverse bird fauna within the Metro-Wichita area. This great diversity of bird fauna depends upon the maturity of the woodland and diversity and abundance of tree species. Seventeen hundred feet of construction through this area would have the potential of destroying most of the vegetative cover in the 2.7 acres of total easements or about 30% of the riparian woodland. This amounts to a total of 276 trees greater than and 286 trees less than 4.5 inches in diameter as well as the dense brush of the understory. This riparian corridor is a mature community having many large trees in the overstory and many small trees, woody shrubs and herbaceous vegetation in the understory. It is unique because it is the last contiguous woodland in the Dry Creek watershed. Construction disturbance is temporary, but the results of construction will change the community structure and even if replanting is accomplished according to EPA specifications, it is unlikely that a mature system similar to the one destroyed will develop within 20 to 30 years. Because the present 21-inch sewer line, constructed approximately 50 years ago, was placed mostly by light equipment excavation, the present riparian community is at least 50 years old and some portions may be considerably greater in age. Under no circumstances is it likely that a mature system with its attendant bird fauna could develop within the lifetime of the present residents. In 50 more years can we expect another major sewerline construction through the area?

27 The Bluff Street Gravity Alternative would be a greater temporary inconvenience to residents but would do far less damage to the integrity of the riparian woodland. Less than 50* trees greater than 4.5 inches in diameter need be removed between Kinkaid and George Washington or 5 to 6% of the entire riparian woodland as compared to 30% for the Dry Creek Alternative. Slipliner, lateral hookup and gabion construction is by light equipment excavation, which eliminates the greater damage by heavy equipment. The 21-inch sewer repair and stream crossing activities could be designed to assure that little damage need occur in the riparian corridor. Slipliner construction for this section may be unnecessary since this sewer will carry only a small fraction of the present load.

The integrity of this last woodland in the Dry Creek basin far outweighs the other categories of environmental impact included in the EIS. Cost, noise, stream bank erosion, public inconvenience, and public safety are all temporary. The long-term impact on this riparian woodland far outweighs the added cost and short-term problems associated with the Bluff Street Alternative.

* Rather than 115 as reported in EIS

We implore the decision makers to consider the long-term consequences of major construction through this last unique biological community in the Dry Creek basin and, in addition, take steps to protect the area from major alterations in the future.

Respectfully submitted,

Arthur L. Youngman
Bobbie Giltner
Mary Alice Horsch
[illegible] Lamar

From the meeting of

The Environmental Resource Advisory Board

Monday, July 23, 1979, 7:00 p.m.

A motion was duly executed to recommend to the City Commission that:

> Assessment of the Environmental Impact Statement for the Dry Creek Interceptor, Wichita, Sedgwick, Kansas, is to agree with the Environmental Impact Statement evaluation of impacts on aesthetics and wildlife as being dissimilar for the dry Creek Interceptor alignment and the Bluff Street-Kinkaid gravity sewer alternate. The Subcommittee therefore favors the Bluff Street-Kinkaid gravity sewer alternate.
>
> And further that priority be given to restoration of any damage to the natural characteristics of the area.

28 We agree with that portion of the EIS (p 46) that states, The Dry Creek alternative would have the greatest impact on the aesthetic value of the area because it requires the construction of approximately 1700 feet of pipe through the Dry Creek area" and (p35) "the area supports what may be the most diverse bird fauna within the Metro-Wichita area." We do not agree that the construction activity corridor would encompass only 1.35 acres of an aesthetically pleasing wooded area (p 46). The actual riparian woodland of Dry Creek includes an area of 9 to 10 acres, 27% or 2.7 acres of which are included in temporary or permanent easements. The permanent easements include 1.1 acres. Approximately one-third of the riparian woodland is subject to radical disturbance by this alternative. A total of 276 trees greater than 4.5 inches in diameter occur in these easements, not 133 as stated in the report. This riparian corridor is a mature community having many large trees in the overstory and a dense understory of woody shrubs and herbaceous plants. It is unique in that it is the last contiguous woodland in the Dry Creek drainage basin. The report states that the disturbance will be temporary, but even if it is planted and maintained according to specifications by professional engineers, it is likely to require a minimum of 25 years to develop another mature community. Any less effort would prolong the recovery time an additional 15 to 30 years, certainly not in the lifetime of the present residents of the area.

29 The Bluff Street alternative would seem to do less damage to the total green corridor than the Dry Creek alternative. Approximately 45 trees 4 inches in diameter or larger would be removed if a swath 25 feet by 400 feet were cleared from Kinkaid to George Washington, not 118 trees as stated in the report (p 54). This is about 16 per cent of the total number of trees in the permanent and temporary easements. We have been apprised that slipliner construction activities may damage as much as 75 per cent or as little as 15 per cent of the total riparian woodland, depending on the judgement of the contractor. Both areas of slipliner insertion are in glades (grassy areas). Of the five creek crossings, the two most distant would have a smaller impact than the others because of access from Mount Vernon and George Washington. It is unlikely that stream crossing and sewer hookup construction at the remaining three sites would be as severely damaging to the riparian woodland as construction of the Dry Creek alternative, because of the use of smaller excavating equipment. We employ the Commission to consider the short and long term consequences of major construction through this last and unique biological community in the Dry Creek drainage basin.

July 30, 1979

Edward C. Vest
Environmental Impact Statement Coordinator
United States EPA
Region VII
324 East 11th Street
Kansas City, MO 64106

RE: Draft Environmental Impact Statement, Dry Creek Interceptor
Wichita, Sedgwick, Kansas

The Wichita-Sedgwick County Environmental Resource Advisory Board discussed in some detail, the Draft Environmental Impact Statement, Dry Creek Interceptor, Wichita, Sedgwick, Kansas on July 23, 1979.

The Board took the action that is depicted by the attached statement.

The Wichita City Commission has deferred action on the Dry Creek Interceptor until after the August 1 public hearing. As the Environmental Resource Advisory Board was created to be advisory to city and county departments as well as to the City and County Commissions and the Board of Health, I am submitting their comments to you as a matter of information. Also enclosed is a copy of my previously developed comments and recommendations which have not changed.

James F. Aiken

James F. Aiken, Jr.
Environmental Health Director

JFA:pp

Attachments

cc Mary Alice Horsch

Wichita-Sedgwick County Department of Community Health
1900 East Ninth Street-Wichita, Kansas 67214 (316)268-8201

THE WICHITA-SEDGWICK COUNTY DEPARTMENT OF COMMUNITY HEALTH

OFFICE OF Environmental Health DATE July 16, 1979

TO John Wynkoop, Director of Water and Water Pollution Control

FROM James F. Aiken, Jr., Environmental Health Director

SUBJECT Environmental Analysis of the EPA Draft Environmental Impact Statement, Dry Creek Interceptor, Wichita, Sedgwick County, Kansas

A careful review of Table V, Evaluation of Alternatives, pages 77 and 78 and the entire discussion provided in the Draft Environmental Impact Statement leads to a conclusion that the ranking is essentially correct with the exception of the Public Safety item and the Cost item.

The discussion in relation to Public Safety for the Dry Creek alternative and the Bluff Street alternatives indicate:

> Dry Creek Alternative . page 49, "This alternative would have relatively minor impact on public safety. In the area between the intersection of Bluff and Mt. Vernon, and George Washington, construction activities would be in an area remote to normal pedestrian or vehicular traffic. As such, public safety impacts on both pedestrians and vehicular traffic are minor. Within the construction area along George Washington sufficient off-road right-of-way exists to minimize traffic disruption".

30

> Bluff Street Gravity and Force Main Alternatives, page 58, "The Bluff alternatives present a special impact on public safety in regard to the selection of routing along Bluff and Kinkaid. This portion parallels a route taken by area school children who attend Griffith Elementary School. The natural curiosity of young children makes them particularly susceptible to the dangers associated with trenching operations."

In Table V both the Dry Creek alternative and the Bluff Street alternatives are ranked as a moderate impact (2). It is evident that the Dry Creek alternative would have a minor impact on public safety due to the remote nature of the construction area and should have a corresponding ranking of (1).

With this one change in the ranking, a summary of Table V without the cost included would be as follows:

Table V: Evaluation of Alternatives Summary

Impacts	Alternatives				
	Dry Creek	Mt. Vernon Gravity	Mt. Vernon Force Main	Bluff Gravity	Bluff Force M
Noise	2	2	2	2	2
Aesthetics	3	1	1	2	2
Wild Life	3	1	1	2	2
Erosion	2	1	1	2	2
Public Safety	1*	3	3	2	2
Public Inconvenience	1	3	3	2	2
Energy Use	0	0	3	0	3
Total Environmental Impact Ranking	12	11	14	12	15

30

* Reduced from 2 to 1

On the basis of this ranking, the Mt. Vernon Gravity alternative would have the least environmental impact with the Dry Creek and Bluff Street Gravity alternatives tied for second. However, there are two other areas of concern which should be included in the overall evaluation--costs and time of construction. Table V on page 78 of the Draft EIS includes cost (present worth) in the ranking on the basis of (1) to (5), lowest cost to highest cost. This does not provide a direct comparison with the other items on the same basis (1) to (3), for minor to major impacts. The Dry Creek alternative is the lowest cost with the Mt. Vernon Gravity alternative being 1.9 times as high and the Bluff Street Gravity alternative being 1.2 times as high. A method of including the cost in the ranking on the basis of (1) for the lowest and (3) for the highest with the in-between costs proportioned is suggested.

The other factor that should be included in the ranking is the time of construction (days). The length of construction time effects the severity of the other environmental impact items and is of sufficient importance in highly developed or sensitive areas to be included as a separate item. It is suggested that the number of days for construction be proportioned from (1) to (3) on the same basis as the cost.

Including the cost and construction time in the summary of Table V indicates the following:

Table V: Evaluation of Alternatives Summary

	Dry Creek	Mt. Vernon Gravity	Mt. Vernon Force Main	Bluff Gravity	Bluff Force Main
Total Environmental Impact Ranking	12	11	14	12	15
Cost (present worth)					
Amount	$735,682	$1,393,722	$1,503,786	$881,718	$1,1[illegible]
Ranking (1)	1.0	2.7	3.0	1.4	2.1
Construction Time					
Days	135	300	185	170	120
Ranking (1)	1.2	3.0	1.7	1.6	1.0
Ranking Summary	14.2	16.7	18.7	15.0	18.1
Ranking Order	1	3	5	2	4

(1) Calculations attached

This evaluation provides a definitive conclusion that the Dry Creek alternative should be selected.

While my comments and conclusion have been developed on a straight-forward basis in relation to the information contained in the Draft Environmental Impact Statement, it is likely that an engineering analysis of the alternatives will indicate necessary construction modifications for the Bluff Street Gravity

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alternative that will result in not only an increase in cost but also increased environmental impacts along Bluff Street as well as in the Dry Creek area due to the sewer liner construction.

It is my professional environmental opinion that the community will be better served by proceeding with the Dry Creek alternative for the sewer interceptor.

James F. Aiken Jr.

James F. Aiken, Jr.
Environmental Health Director

JFA:pp

Reproduced from best available copy.

30 alternative that will result in not only an increase in cost but also increased environmental impacts along Bluff Street as well as in the Dry Creek area due to the sewer liner construction.

It is my professional environmental opinion that the community will be better served by proceeding with the Dry Creek alternative for the sewer interceptor.

James F. Aiken Jr.

James F. Aiken, Jr.
Environmental Health Director

JFA:pp

ATTACHMENT

Ranking Calculations for Cost and Construction Time

1. Cost

Dry Creek
1+(((3-1) ÷ ((1503786 ÷ 735682) -1)) x ((735682 ÷ 735682) 1)) = 1.0

Mt. Vernon Gravity
1+(((3-1) ÷ ((1503786 ÷ 735682)-1)) x ((1398723 ÷ 735682)-1)) = 2.7

Mt. Vernon Force Main
1+(((3-1) ÷ ((1503786 ÷ 735682) -1)) x ((1503786 ÷ 735682)-1)) = 3.0

Bluff Gravity
1+(((3-1) ÷((1503786 ÷ 735682)-1)) x ((881718 ÷ 735682)-1)) = 1.4

30

Bluff Force Main

1+(((3-1) ÷ ((1503786 ÷ 735682)-1)) x ((1160108 ÷ 735682)-1)) = 2.1

2. Construction

Dry Creek
1+(((3-1) ÷ ((300 ÷ 120)-1)) x ((135 ÷ 120)-1)) = 1.2

Mt. Vernon Gravity
1+(((3-1) ÷ ((300 ÷ 120)-1)) x ((300 ÷ 120)-1)) = 3.0

Mt. Vernon Force Main
1+(((3-1) ÷ ((300 ÷ 120) -)) x ((185 ÷ 120)-1)) = 1.7

Bluff Gravity
1+(((3-1) ÷ ((300 ÷ 120)-1)) x ((170 ÷ 120)-1)) = 1.6

Bluff Force Main
1+(((3-1) ÷ ((300 ÷ 120)-1)) x ((120 ÷ 120)-1)) = 1.0

JFA 7-16-79

2145 South Bluff
Wichita, Kansas 67218
August 6, 1979

Mr Edward C. Vest
Environmental Protection Agency
324 East 11th Street
Kansas City, Missouri 64106

Dear Sirs,

I would like to state my interests concerning the Dry Creek Sanitary Sewer Project. I have been a resident at 2145 South Bluff since 1946, when my husband,(deceased since 1951) built the home. The property consists of a parcel of land, approximately 160 feet wide by 950 feet deep. It faces Bluff Street on the East, Bluff Court area on the north property line, Kinkaid residents back property line on the south, and Geo. Wash. Blvd. residents back property line on the west. Dry Creek and the old Dry Creek sewer line cuts across my propertys west end. I would be affected by alternatives, #1 Dry Creek Sewer, #3 Bluff Street,Gravity, and #3a Bluff Street Force Main.

Iam interested as both a Bluff Street resident and a Dry Creek area owner. I am very opposed to the #3 Bluff Gravity and the #3a Bluff Force Main alternative for the following reasons; I am 85 years old and need constant access into and out of my home for medical reasons. I have a history of blood clots and circulation problems in both legs. I can not walk far at a time, and it would be impossible for me to walk over construction work at Bluff Street. The Bluff Street entrence is the only access to my home. 1

I also have glaucoma in both eyes, and it too requires constant medical treatment. If you used the Bluff Street route for the sewer, I would be Imprisoned in my own home for need of access out.

I would much perfer , as a Dry Creek property owner, that you would choose the #1 Dry Creek Sewer Route, as it was approved by the City Commission. I feel that it would cause far less hardship for more area residents, and would be the more practical route.

I have been to many of your meetings concerning the project,and have seen Mr. Keith Sanborn and other Dry Creek owners, distort the impact of the Dry Creek Route to fit thier own interests. I feel they do not care who they inconvenience, as long as the sewer is placed elsewhere.

I hope that you will not be overly influenced by the"court room" theatrics, of Mr. Sanborn , and his vocal group of special interest people. I hope that you will make your decision for the good of the majority of area residents.

Thank you for your time.

Sincerely,

Alma A. Bain

Alma A. Bain

We are Kathleen and Doran Barham, residents and home owners at 3820 E. Kinkaid for the past twenty-four years and, as such, will be effected by whatever decision is made concerning water waste treatment facilities within the Dry Creek Sewer District.

At the last meeting held August 1, 1979, at St. Christopher's Church many views and opinions were expressed. Very little, however, was brought up about the deteriorating condition of Dry Creek between George Washington and Mt. Vernon and Bluff. While some of the property owners adjacent to Dry Creek have maintained it, many others have done little to keep it from becoming overgrown, poluted, a trash dump, loaded with poison ivy, dead trees and unsafe in many areas. It would appear that if the interceptor were to be placed down Dry Creek this could help recitify some of the deteriorating conditions if done in a proper manner. Much was said about not wishing to have it become a wide paved area devoid of plantings and we too would agree with that opinion. However, it was not our understanding that this was what was being proposed though at no time did anyone state this fact. We would appreciate having this point clarified.

32

RECEIVED
AUG 14 1979
ENGINEERING BRANCH
WATER DIVISION

RECEIVED
AUG 20 1979

Reproduced from best available copy.

Bringing the interceptor down Bluff Street would do
little if anything as far as helping solve the problem
of deterioration of the entire Creek area. According to the
fact sheet presented it would only reduce the number
of trees lost by fifteen compared to using Dry Creek
while doubling the number of accesses blocked, and using
33 Mt. Vernon it would multiply the number blocked nine
times. What percentage of total trees in the area would
be removed and what percent, even if not the same
size, would be replanted?

It is true that we have enjoyed and appreciated the wooded area of our neighborhood, the "dead end" aspect of our street, the cooling effect of the trees, and, in general, the bird population. We have not particularly appreciated the poison ivy, mosquito problem, and deteriorating conditions in the area in recent years. Our gratitude goes to the neighbors who have endeavored to encourage proper maintanence. No doubt if our actual property were at stake we might take a different view, but it would seem that what would benefit the most people, the longest time, done in an ecological, economical manner would be the wisest choice. Many people in this area already have bird feeders and perhaps the area in general, if concerned enough about their welfare, could increase the amount of back

yard feeders. We are not as well informed about
bird habits as some of the area residents, but
page 48 of the Environmental Draft Impact Statement
Does indicate vigorous site restoration work and
Construction timing Could greatly mitigate the impact
34 of the tree and undergrowth removal limiting
Construction activity to non-breeding months.
Would we have some assurance that this would
transpire?

Many people present at the meeting seemed to think that no sewer work was necessary at all. Little factual information Concerning this point was presented except for the fact that there is hydraulic overloading and structural deterioration of the existing interceptor. It would have been helpful to hear from the City's engineers or whoever determined this as opposite views were expressed at the meeting making it difficult to understand the true situation.

Our understanding in the past was that if this should Come to an impass and federal funds denied, the City Could still elect to install an interceptor in Dry Creek and Could in fact do it in any manner selected, possibly very unecologically. Is this a fact?

Kathleen Barham
Doran W Barham

Reproduced from best available copy.

Regional Administrator
U S Environmental Protection Agency
324 East Eleventh Street
Kansas City, Missouri 64106

From: Don E. Cottingham
Member of the Board of Directors
Dry Creek Association
3600 E. Pawnee
Wichita, Kansas 67218

Subject: Dry Creek Interceptor Sewer Project
Wichita, Kansas

Date: August 1, 1979

Point 1 The Wichita area Environmental Resources Advisory Board has declared the Dry Creek route, if chosen for the Sanitary Sewer Interceptor Project, will be the one of three alternates which will be the most damaging to the natural ecology and environment.

Point 2 The Dry Creek area is probably the most unique such area within the city limits of Wichita in that it has been maintained by the residents as near as practible in a natural ecological state providing a rare haven for flora, fauna and wildlife.

Point 3 Every effort should be made to preserve and protect this valuable and scarce resource and your financial support of this project, if the Dry Creek Route is selected, seems to contradict the very purpose for which your agency exists which is to preserve and protect the environment from careless and thoughtless planning of development projects.

Point 4 Other alternate routes offer construction lanes along streets and parking areas eleminating the need for destruction to rare ecological features such as are found in Dry Creek.

Point 5 The cost differential between the Dry Creek and the Bluff Street alternatives as outlined in your study are not accurate.

First, nearly all of the easements for the Bluff Street route are now in hand eleminating or reducing both the cost of acquiring and the time of acquiring and the burden of esculating construction costs incurred as inflation impacts the project with any delay in the starting date. 35

The delay already experienced has probably increased the cost of this project by 15%.

My residence is not in this project area but I have a definate feeling from talks with homeowners in the project area that if the Dry Creek route is selected, it will face additional cost impacting delays resulting from litigation that could run into years and inflated costs.

Point 5 (cont.) 35 not donate these easements and will contest any attempt by the city to obtain these easements at a nominal cost.

Point 6 This resistance is understandable since the sewer project is not a direct benefit to them but is designed to relieve pressure on the sewer lines South and West of the Dry Creek Association Area in the Pawnee Ranch Division of Wichita.

Point 7 The need for this project has never been satisfactorily explained by the city staff and said need remains in doubt. It is widely believed that the true need for the sewer is to make possible more infill construction in the Dry Creek Drainage Plain which can only accelerate the flow of water thru the creek further increasing the destructive erosion problem to these people being asked to give easements.

Point 8 The city staff asserts that even if the sewer project does not go thru the Dry Creek area, it will be necessary to insert a plastic liner in the existing sewer line due to its' condition and make new connections with residental lines.

36 Last year, at a city commission hearing regarding this sewer project, I asked the city sewer staff and city engineering staff if they had found the sewer to be in poor condition. They testified it was not and that a television inspection of the entire sewer line in the Dry Creek area in question was in very good condition with only a few minor exceptions.

Why this complete about face? Can it be an attempt to minimize our position that routing the sewer thru one of the other alternates will preserve the integrety of the Dry Creek ecology. I think that is the case.

At the time the crews were running the T V film of the sewer, one of our members was present and the crew superintendent was heard to remark several times that the line was in surprisingly good condition.

I urge that with this information you avoid placing credibility on the citys' position that the Dry Creek ecology will be disturbed even if the new sewer takes a different route.

Part 9 The EPA study implies that the damage to the ecology if the Dry Creek route is selected will be temporary.

I suppose 50 or 100 years can be considered temporary when we think in terms of our environment but that is permanent so far as these residents are concerned.

Further, once disturbed, it is doubtful that the area will ever return to its' uniquely natural state.

Conclusion Since, for reasons stated, the cost between the Dry Creek and Bluff Street routes is nominal and probably will be more expensive if the project is placed in Dry Creek, and,

Since, only man made environment will be disturbed if the Bluff Street or Mt. Vernon Street is selected. and,

Since the Environmental Protection Agency is charged with the responsibility of "Protecting" the environment,

Your agency should instruct the City of Wichita that you will participate in the funding of this project only if a route other than Dry Creek is selected.

STATE OF KANSAS

Department of Administration

DIVISION OF STATE PLANNING AND RESEARCH
5th Floor—Mills Building
109 W. 9th
Topeka, Kansas 66612

RECEIVED
JUL 30 1979
EIS/404 BRANCH

July 26, 1979

Edward C. Vest, EIS Coordinator
U.S. EPA, Region VII
324 East Eleventh Street
Kansas City, Missouri 64106

Re: City of Wichita
Plan of Study
SAI#: 7339 - EIS

The referenced Plan of Study has been processed by the Division of State Planning and Research under its clearinghouse responsibilities described in Circular A-95. After review by interested state agencies it has been found that the proposed study does not adversely affect state plans. Copies of all responses received are attached.

The following agencies expressed interest or concern regarding any proposed or recommended construction projects resulting from these plans:

37 | ~~Agriculture - Division of Water Resources~~
38 | ~~Historical Society~~

Please provide us with 2 copies of the draft Facilities Plan for distribution to the above noted agencies and for our files. Should you have any questions, please contact this office using the SAI number above.

Sincerely,

Paul V. DeGaeta
A-95 Coordinator

PVD:jc

cc: Wichita/Sedgwick Co. Metropolitan Planning Dept.

STATE AGENCY A-95 TRANSMITTAL FORM

DIVISION OF WATER RESOURCES
RECEIVED
JUL 3 1979
STATE BOARD OF AGRICULTURE

Return to:
Division of State Planning & Research, Department of Administration, Suite 497
Mills Building, Topeka, Kansas 66612

PROJECT TITLE: EPA, Region VII - Dry Creek Interceptor, Wichita, KS, EIS

☐ Notification of Intent
☐ Preapplication
☐ Final Application

DATE REVIEW PROCESS STARTED	DATE REVIEW PROCESS ENDED	SAI NUMBER
7-2-79	7-23-79	7339 - EIS

PART I Initial Project Notification Review (To be completed by Clearinghouse):

The attached project has been submitted to the State Clearinghouse under the provisions of the Federal OMB Circular A-95 revised. This form provides notification and opportunity for review of this project to the agencies checked below. Please fill in Part II and Part III below and return to the State Clearinghouse.

☒ Return by 7-23
☐ Expedite
☐ Add. Info. Avail.

REVIEW AGENCIES

☐ Aging
☒ Agriculture - DWR
☐ Civil Rights Commission
☐ Economic Development
☐ Education
☒ Fish and Game Commission
☒ Health and Environment
☒ Historical Society
☐ Human Resources
☒ Kansas Corporation Commission
☒ Park and Resources Authority
☐ Social and Rehabilitation Services
☒ State Conservation Commission
☐ Transportation
☐ Water Resources Board
☒ Kansas Energy Office
☒ ~~Kansas Geological Survey~~

PART II Nature of Agency review comments (To be completed by review agency and returned to CH

Check one or more appropriate boxes. Indicate comments below. Attach additional sheet if necessary or use reverse side.

☐ Request clarification or additional info. ☐ Suggestions for improving project propos

COMMENTS:

The project may involve the changing of the course, current or cross section of a stream, making it subject to the provisions of K.S.A. 82a-301 to 305a, which requires a permit from the Chief Engineer of the Division of Water Resources prior to construction.

PART III Recommended State Clearinghouse Action (To be completed by review agency and returned to Clearinghouse):

Check one box only:

☐ Clearance of the project should be granted

☐ Clearance of the project should be delayed until the issues or questions have been clarified by the Applicant

☐ Clearance of the project should not be delayed but the Applicant should (in the final application) address or clari the questions or concerns indicated abov

☐ Request the opportunity to review the final application prior to submission to the federal funding agency

Reviewer's Name	Div./Agency	Date
		7-5-79

STATE AGENCY A-95 TRANSMITTAL FORM

eturn to:
Division of State Planning & Research, Department of Administration, Suite 407
Mills Building, Topeka, Kansas 66612

ROJECT TITLE: EPA, Region VII - Dry Creek Interceptor, Wichita, KS, EIS

☐ Notification of Intent
☐ Preapplication
☐ Final Application

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☐ Add. Info. Avail.

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- ☒ Agriculture - DWR
- ☐ Civil Rights Commission
- ☐ Economic Development
- ☐ Education
- ☒ Fish and Game Commission
- ☒ Health and Environment
- ☒ Historical Society
- ☐ Human Resources
- ☒ Kansas Corporation Commission
- ☒ Park and Resources Authority
- ☐ Social and Rehabilitation Services
- ☒ State Conservation Commission
- ☐ Transportation
- ☐ Water Resources Board
- ☒ Kansas Energy Office
- ☒ ~~Kansas Geological Survey~~

PART II Nature of Agency review comments (To be completed by review agency and returned to CH)

heck one or more appropriate boxes. Indicate comments below. Attach additional sheet if necessary or use reverse side.

☒ Request clarification or additional info. ☐ Suggestions for improving project propos

OMMENTS:

The proposed routes for the Dry creek, the Bluff gravity and the Bluff force main alternatives show a 24" sewer connection crossing Gypsum creek. This creek crossing appears to impact archeological site 14SG527. This office would need to review more detailed plans to determine the accurate location of this sewer line and its relationship to the archeological site before any final clearance could be given.

PART III Recommended State Clearinghouse Action (To be completed by review agency and returned to Clearinghouse):

Check one box only:

☐ Clearance of the project should be granted

☐ Clearance of the project should be delayed until the issues or questions have been clarified by the Applicant

☐ Clearance of the project should not be delayed but the Applicant should (in the final application) address or clarify the questions or concerns indicated abov

☐ Request the opportunity to review the final application prior to submission to the federal funding agency

eviewer's Name	Div./Agency	Date
Richard Pankratz	Historical Society	7-25-79

ENVIRONMENTAL PROTECTION AGENCY

PUBLIC HEARING

PROPOSED SEWER REPLACEMENT PROJECT FOR THE DRY CREEK SANITARY SEWER DISTRICT IN SOUTHEAST WICHITA.

August 1, 1979

7:30 o'clock p. m.

St. Christopher's Church
2211 South Bluff
Wichita, Kansas

ARGIE REPORTING SERVICE
1000 WEST 70TH TERRACE - KANSAS CITY, MO. 64113
(816) 363-3657

INDEX

PARTICIPANTS	PAGE
Hearing Officer Ellen Goldman	4
Kathleen Q. Camin	6
Ed West	8
Ronald King	9
Norman Crisp	11
Barbara Keltner	13
Rev. Jesse Black	14
John A. Mitzler	16
Donald Cunningham	19
Jerry Greiter	24
Keith Sanborn	25
Wendy Sanborn	36
Patricia E. Nelson	37
Mary Alice Horsch	41
Dr. Art Youngman	43
Victor W. Pickering	46
Katherine Huntington	49
Dorothy Hummer (statement read)	50
City of Wichita Staff Statement	50
F. E. Johnson	73
Mr. Hondus	75
Patricia Nelson	75

I N D E X (cont'd)

PARTICIPANTS (cont'd)	PAGE
C. E. Cooper	77
Steve Hughes	78
Hank Shenay	79
Ron King	80
Howard Boice	81
Doug Horseman	82
Jody Scott	84
Norman Crisp	85
Wendy Sanborn	89
John Metzler	90
Kathleen Q. Camin	91
Kathleen Barnes	92
F. E. Johnson	93
Mell Kunoe	99
Howard Boice	100
Lee Stripe	105
Kenneth German	108

PROCEEDINGS

HEARING OFFICER ELLEN GOLDMAN: I would like to call this meeting--

Can everybody hear me? No? Is this better? Yes.

I am Ellen Goldman, and I am an attorney with EPA. I have been designated to preside here tonight as the Hearing Officer by Dr. Kathleen Q. Camin, the Regional Administrator of EPA, Region VII.

Present from EPA tonight are Dr. Camin, our Regional Administrator; Edward Vest, the EIS Coordinator; Norm Crisp, the EIS Preparer; Mary O'Donald, the EIS Preparer; Ron King, Project Engineer; Rowena Michaels, who is our Environmental Protection Agency Public Participation Officer; and Betty Harris, who is our Public Participation Coordinator.

This hearing is being held in accordance with Title 40 of the Code of Federal Register, Section 6.400. Notice was given by publication in the Wichita Eagle, on July 14,15,16, 1979. The purpose of this hearing tonight is to give interested persons the opportunity to express their opinions and offer suggestions with regard to the Draft, EIS, concerning the Dry Creek Interceptor, Wichita, Sedgwick County, Kansas.

This hearing is also for the purpose of raising any questions you might have. A copy of the

Preceding page blank

record will be available, at cost, upon request. In addition, a copy of the record will be available for you to review at the Regional Library, and at the following Wichita locations--the address of the Regional Library is on your fact sheet--the address of the EPA Regional Library is on your fact sheet.

The following Wichita locations will have the record: The Public Affairs Office in City Hall; The Wichita Public Main Library; Wichita Boulevard Branch Library; Wichita, Sedgwick County, Department of Health and Environment; and the District Office, Kansas Department of Health and Environment.

A summary of the record, including the issues raised and conflicts resolved and unresolved, and any other significant portions of the record will be appended to the final EIS. Therefore, any unanswered questions we deal with tonight will be addressed in the final EIS.

Cards were available at the door where you could indicate if you wish to comment. If you did not so indicate, or if you did not receive a card, please raise your hand and somebody will get you a card now. I will recognize all persons tonight who have indicated on their cards that they wish an opportunity to speak.

But because of the number of people, I am going to have to limit these comments to 10 minutes.

If this is not enough time for you, please recognize that we have a 15 day period during which you might send us written comments. And those will also be incorporated into the record and addressed in the final EIS.

When called, please state your name, and speak clearly for the court reporter. And if anybody has a problem with hearing, there are some facilities available right behind the second pew there, and in the final pew. Does anybody need that? It's all set up.

Now I would like to recognize Kathleen Q. Camin, the Regional Administrator.

Kathleen Q. Camin.

DR. KATHLEEN Q. CAMIN: Good evening! I am very pleased to be with you this evening and to see so many of you at this hearing tonight. I am anxious to listen to your concerns about the proposed sewer project for the Dry Creek Sanitary District.

I think that many of you know that I am personally committed to involving the public in EPA decision making processes here in Region VII. And this Environmental Impact Statement is one example that makes this public involvement possible.

And invironmental impact statement is a document written by a Federal Agency, or under contract to a Federal Agency, to improve the decision making process on projects which are large, very new or controversial. I think that this EIS was asked for because of the controversy involved in this project. I think that you are all aware too that President Carter and our Agency are both committed to projects that are environmentally and economically sound.

And the EIS on Dry Creek was prepared to assure us and assist us in making sure that this project will be sound environmentally, engineering-wise, and economically.

I have with me this evening several of my Staff members who will be glad to answer any questions that you might have, after the hearing. And you will be able to recognize them by the EPA name tag that they are wearing.

If you also have any questions on any environmental subjects in the future, I would urge you to call us on our Environmental Action Line, which is a toll-free number. And, which again, is shown on your fact sheet.

I am pleased, again, to be here this evening and to listen to your comments.

HEARING OFFICER GOLDMAN: Thank you, Dr. Camin.

I recognize Ed Vest, EIS Coordinator, for EPA.

MR. ED VEST: In August of 1977, EPA received a grant application from the City of Wichita for replacing existing Dry Creek Interceptor, between George Washington Boulevard and Mt. Vernon. The plan called for 1700 feet of 36-inch gravity sewer at that location stated, and an additional 1200 feet of 24-inch sewer between Pawnee Avenue and Whitney Lane.

The present interceptor sewer would be abandoned in place. In September of 1977, the grant application was approved following preparation of an environmental impact appraisal and a negative declaration, which basically said at that point, we did not find any significant environmental impacts.

Considerable controversy arose over the plan to place the sewer in the Dry Creek alignment. And on July 26, 1978, Dr. Camine rescinded the negative declaration, and a Notice of Intent to prepare an Environmental Impact Statement was issued.

As a first step in the Environmental Impact Statement process, a public workshop was held, in October 1978. The meeting included many interested citizens and residents of the Dry Creek area. Many of the ideas that came forth from that meeting are included in the Draft Statement. I am sure that a number of you were there.

The Draft Environmental Impact Statement, which is the subject of this public hearing, has been prepared under the requirements of the National Environmental Policy Act and the Regulations of the Council on Environmental Quality.

The notice of availability was published in the Federal Register on June the 29th, 1979. This date also began the 45 day review period in which citizens and Government Agencies may submit their comments for inclusion in the final Environmental Impact Statement.

The final date for submitting comments on the Draft Environmental Impact Statement is August 15, 1979. Following receipt of all comment letters, EPA will prepare a final Environmental Impact Statement, which will include all comment letters submitted, revisions which are required, and a summary of this public hearing.

The final Environmental Impact Statement will be used as a decision document in determining which alternative EPA will fund. It will be sent to all persons and agencies who provide comments on the Draft EIS.

HEARING OFFICER GOLDMAN: Thank you, Ed.

I now recognize Norman Crisp--Ron King.

MR. RONALD KING: My name is Ron King. And I am a Project Engineer for EPA. I will briefly discuss the alternatives as they were listed in the Environmental Impact Statement.

The first alternative, the Dry Creek alternative, which is 1700 feet of 36-inch sewer paralleling the existing Dry Creek sewer and also 1200 feet of 24-inch sewer located between Pawnee Avenue and Whitney Lane. This 24-inch sewer will connect into an existing 24-inch sewer.

The second alternative is the Mount Vernon Gravity. This is 6600 feet of 36-inch gravity sewer constructed within the Mt. Vernon roadway from Bluff Street to Grove Street, and also 1700 feet of 10-inch slipliner in the existing Dry Creek interceptor.

Another alternative is the Mt. Vernon Force Main. This consists of 6600 feet of 20-inch force main with--between Bluff Avenue and Grove Street. And also 1700 feet of 10-inch slipliner within the existing Dry Creek sewer.

Another alternative is in the Bluff Street Gravity. This is 2300 feet of 35-inch gravity sewer located within the Bluff Street roadway, south of Mt. Vernon and on Kinkaid Avenue, and also consists of 1200 feet of 24-inch gravity sewer between Pawnee Avenue and Whitney Lane. And this also will connect with an existing 24-inch sewer located within George Washington Boulevard. And this also requires a 10-inch slipline within the existing Dry Creek sewer.

Another alternative, the Bluff Force Main, which is 2300 feet of 20-inch force main, with an 8800 gallon-per-minute pump station, located within the Bluff Stree roadway, south of Mr. Vernon and then on into Kinkaid Avenue. This also consists of 1200 feet of 24-inch gravity sewer between Pawnee Avenue and Whitney Lane. This, again, requires a10-inch slipliner in which will tie into the existing 24-inch sewer located within the George Washington Boulevard.

The last alternative that was considered in EIS was No Action alternative. This alternative was dismissed as unfeasible because it would not eliminate the present hydraulic overloading of the Dry Creek sewer and/or eliminate the sewage backups into some basements, within the Dry Creek drainage basin.

Again, these are the alternatives that were considered within the EIS.

HEARING OFFICER GOLDMAN: Thank you.

I recognize Norm Crisp, EIS Preparer.

MR. NORMAN CRISP: I'd like to give you an opportunity--to give you a brief idea of the area that we are talking about. This area represents the Dry Creek Sanitary District, one of the many sewer districts within the City of Wichita. That particular area of impact and the area that is addressed in the Environmental Impact

Statement is right in here (indicating).

What I would like to do, at this point, is to give you a brief overview of the impacts which were evaluated in the Environmental Impact Statement. This same visual aid is shown on the backside of your fact sheet. It will give you a brief description of the impacts that were considered which included the economic impact and the capital cost and the capital expenditures that was required for construction of the project. The noise increased due to construction, the aesthetics, the effect of construction crridors may have on the locally pleasing qualities affecting the area.

The disruption of the natural environment caused by construction into the Dry Creek woodland area. Stream Bank Erosion which will result from the excavation and construction of the Creek's crossings. The Public Inconvenience due to construction activities such as temporary blocking of Dry Creek accesses and things of that nature.

Public Safety, danger due to construction particularly with that to young children in their natural curiosity into such activities. And finally, Energy Use required for operation of such a system.

HEARING OFFICER GOLDMAN: Now, I recognize Barbara Keltner.

MS. BARBARA KELTNER: I am Barbara Keltner. I live at 437 Westfield Court, in Wichita. And I am representing the Sierra Club. The Sierra Club will send our statement later because they were not able to have a meeting to vote on the recommendation.

And I will speak for myself. The removing of trees and shrubs from the Dry Creek area will upset the evapor-transferation regime in the immediate area. And, at least, within a block or less. Trees and shrubs help build up humidity, which in turn forms a barrier to the sun's radiation. Which means, in summer the temperature may not rise as high in these areas.

39

Also, in the winter the cover provides shelter from cold winds. If it were my decision to choose inconvenience over the long range effect of higher utility bills, I would choose the short term inconvenience.

The Energy Department Staff of the City of Wichita agrees that there will be a temperature change if trees and shrubs were removed from the area. The degree of change cannot be determined without studies but, of course, the more vegetation removed, the greater change.

Does EPA ever take into consideration this type of environmental change? That is the question I had.

HEARING OFFICER GOLDMAN: Thank you.

I recognize the Reverend Jesse Black.

REV. JESSE BLACK: Thank you. I want to welcome you to this meeting which is--the people of St. Christopher are happy to provide the facility for you.

I have a couple of questions having looked at this summation of environmental impacts. I notice that under constuction of--disruption of natural environment there was a list of 133 trees that would be one of the environmental costs of going down Dry Creek. But I also notice that using the Bluff route has the environmental cost of removal of 118 trees.

So on the issue of tree removal, and tree distruction, this document tells us that the cost differences is more like 15 trees. I had not been aware of this before tonight, and before studying this document, and I would like to have somebody address the question of where these 118 trees on Bluff Street and Kinkaid are located. I imagine most of them are in back of the parking lot, right down there (indicating). I think that is an important factor to know this.

I think it is important to notice this when we have looked at the difference in costs of those two projects, and the difference in the disruption of community in these two projects and we are balancing them off against the environmental deterioration or environmental disruption, to notice that there is a high environmental cost coming down Bluff Street as well, the natural environment as well as the human environment. So that seems to me a very important point to underline tonight.

The other thing is that I had been told--and I would like this clarified, that the cost, the City of Wichita's--either the Engineering Department or the Planning Commission, has revised upward, fairly sharply, the estimated cost of coming down Bluff and Kinkaid, from 18--or 881 thousand for the gravity, up to over a million, because of some lines that would be displaced and so on.

And I would like to know if the City has made that revision upward, and why, because that would seem to make the cost between the Creek and the Street, even sharper.

And finally, I would like to know if the City Planning Department--this is a genuine question, I am not trying to bait or weight the decision, but, see, I would like to know if the City Planning Department has taken a position on which of these alternatives is preferable. And the reason that I want to know that is that I recognize that as the Director of this Church, right on the corner where this alternate on coming down the street is, I have a vested interest in it not coming down the street because it is going to make access to my congregation to this parish much more difficult. It is not an insoluable problem if the street is kept half open. We can live with that. And we are not going to behave in such a way, as a congregation, as to antagonize people in this community, but we have a vest interest in not having it come down this street.

And the people who live along the Creek bed, have an enormous vest interest in not having it come down theirs. So it seems to me, that one impartial body of people who are well-informed, who look at this without a vest interest, is the Planning Department and I would like to know if they have a recommendation. And I would give that more weight, in a way, then I would give my own opinion. Well, that's my comments.

HEARING OFFICER GOLDMAN: Thank you. I am going to hold any responses until the end, so I can give everybody an opportunity to speak first.

I recognize John A. Metzler.

MR. JOHN A METZLER: Thank you.

I am John Metzler, with the State of Kansas, Department of Health and Environment, in Topeka. And the following are the comments the Department has regarding the draft Environmental Impact Statement for the Dry Creek interceptor project.

40 No. 1, we believe that ownership of the land bordering on the permanent easement of the proposed 36-inch replacement sewer be discussed in the statement, as I believe a map showing the location with the names of the various owners should be included in the statement.

41 No. 2, the statement does not appear to adequately focus on the public safety and inconvenience aspects of the Bluff Street Gravity Construction. It is our understanding that the soil's condition in this area that the entire width of road would conceivably have to be removed to achieve stable slopes. This would present serious implications, particularly to those living on the cul de sacs, just west of Bluff Street. Emergency vehicle access to these areas would conceivably be eliminated for significant periods of time.

A rating of 2, for this alternative, when the Mt. Vernon Gravity and Force Main alternatives receive a 3, appears to be unjustified.

42 No. 3, the discussion of existing sewer line--the existing sewer line through the area in question does not appear to be adequately detailed. Of particular interest is the fact that the original line was constructed without observable, long-term negative environmental impacts.

No. 4, the cost incurred in develop-

43 ing the EIS should be developed--should be included in the statement because these costs will impact on the human environment in the form of increased taxes and, possibly, increased user charge fees. These costs should be included with a breakdown and a total.

The breakdown should include the Environmental Protection Agency's cost in development of the statement, an estimated cost to other Government entities involved in the statement, and an estimate of the increased construction costs due to inflation during the time period the project has been delayed.

44 No. 5, the statement does not address itself to any kind of discussion in minimizing the construction corridor through the tree areas encountered in the Dry Creek alternative.

45 No. 6, the statement is not clear as to the recommended course of action. The recommended course of action was particularly confusing in light of the erroneous exclusion of Page 78. In any event, it is our belief that Page 78 does not adequately delineate the recommended course of action and discussion of implementation for the recommended course of action.

Section 1500.7 of the Council on Environmental Quality Guidelines implies a requirement that a favored alternative be identified in the statement. Additionally, Section 6.210(a) and 6.304 of the April 14, 1975, Federal Register, also indicate that EPA must include a recommended alternative. The organization of the statement was such that it was impossible to identify 45 a recommended alternative. This made it difficult to make adequate review and response to the statement. It appears an attempt might have been made in the statement to avoid a definitive decision.

We recommend that consideration be given to presentation of a second public hearing when all in attendance will know what the recommended alternative is.

We wish to thank the representatives of the Environmental Protection Agency for this opportunity to comment on the draft EIS. Thank you.

HEARING OFFICER GOLDMAN: Thank you.

I recognize Sandy Duncan.

MR. SANDY DUNCAN: I have no comments at this time but I reserve the right to give some later.

HEARING OFFICER GOLDMAN: O.K., fine.

I recognize Donald Cunningham.

MR. DONALD CUNNINGHAM: I am Donald Cunningham, member of the Board of Directors, Dry Creek Association.

I will proceed with the points in the

presentation. Point 1 being, the Wichita Area Environmental Resources Advisory Board has declared, at a meeting last week, that the Dry Creek route, if chosen for the sanitary sewer interceptor project, will be the one of three alternatives which will be the most damaging to the natural ecology and environment.

Two, the Dry Creek area is probably the most unique of such areas within the City limits of Wichita, in that it has been maintained by the residents in as near as practicable in a natural ecological state providing a rare haven for flora and wildlife.

Every effort should be made to conserve and protect this valuable and scarce resource. And you are the EPA financial support of this project, if the Dry Creek route is selected, seems to contradict the very purpose for which your Agency exists. Which is, to preserve and protect the environment from careless and thoughtless planning of development projects.

Four. Other alternate routes offer construction lanes under streets and parking areas, eliminating the need for distruction to rare ecological features such as are found in the Dry Creek area.

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Five. The cost differential between the Dry Creek and the Bluff Street alternatives, as outlined in your study, are not correct or accurate. First, nearly all of the easements for the Bluff Street route are now in hand, eliminating and reducing both the cost of acquiring, and the time of acquiring, and the burden of escalating construction costs incurred, as inflation impacts the projects in any delays in the starting date.

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The delay already experienced has probably increased the cost of the project by 15%. My residence is not in this project area but I have a definite feeling from talks with homeowners in the project area that if the Dry Creek route is selected, it will face additional costs, impacting delays resulting from litigation that could run into years and inflated costs.

I also sense that the residents from the Dry Creek area will not donate these easements and will contest any attempt by the City to obtain these easements at a nominal cost.

Six, this resistance is understandable, since the sewer project is not a direct benefit to them, but is designed to relieve pressure on the sewerline south and west of the Dry Creek Association area, in the Pawnee Ranch Division of Wichita.

I was very amazed to hear the Project Engineer of the EPA state that the fourth alternative was dismissed because of backup and overflow in the Dry Creek area. It has never happened. That is a misunderstanding on EPA's part.

Seven, the need for this project has never been satisfactorily explained by the City Staff and said need remains in doubt. It is widely believed that the true need for the sewer is to make possible more infill construction in the Dry Creek drainage plain, which can only accelerate the flow of water through the Creek, further increasing the destructive erosion problem to these people being asked to give easements.

Eight, the City Staff asserts that even if the sewer project does not go through the Creek area, it will be necessary to insert a plastic liner in the existing sewer line due to its condition, and make new connections with residential lines.

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Last year, at a City Commission hearing regarding the sewer project, I asked the City Sewer Staff and City Engineering Staff if they had found the sewer to be in poor condition. They testified that it was not and that a television inspection of the entire sewer line in the Dry Creek area, in question, was in good condition with only a few minor exceptions.

Why this complete about face? Can it be an attempt to minimize our position of routing the sewer through one of the other alternatives will preserve the integrity of the Dry Creek ecology? I think that is the case.

At the time the crews were running the TV film of the sewer, one of our members was present. And the crew superintendent was heard to remark several times that the line was in surprisingly good condition. I urge, with this information, you avoid placing credibility on the City's position that the Dry Creek ecology will be disturbed even if the new sewer takes different routes because the liner, in my opinion, from all information available, does not indicate--there is no indication of a necessity for that liner.

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Nine, the EPA study implies that the damage to the ecology if the Dry Creek route is selected, will be temporary. I suppose 50 or 100 years can be considered temporary, when we think in terms of our environment. But that is permanent, so far as these residents are concerned.

Further, once disturbed it is doubtful that the area will ever return to its uniquely natural state.

Conclusion, since for the reasons stated the cost of the Dry Creek and Bluff Street routes is nominal, and will probably be no more expensive if the project is placed in Dry Creed, and since only man-made environment will be disturbed in the Bluff Street and

Mt. Vernon Street routes, if selected, and since the Environmental Protection Agency is charged with the responsibility for protecting the environment, your Agency is respectfully asked to instruct the City of Wichita that you will participate in the funding of this project only if a route other than Dry Creek is selected.

(Applause, applause.)

HEARING OFFICER GOLDMAN: Thank you, Mr. Cottingham.

I recognize Jerry Greiter.

MR. JERRY GREITER: For the record, my name is Jerry Greiter. I am Chairman of the Metropolitan Area Planning Commission and we do have a statement.

The Wichita Sedgwick County Area Planning Commission has reviewed the draft Environmental Impact Statement proposed Dry Creek Interceptor, in Wichita, Sedgwick County, Kansas, issued by the Environmental Protection Agency, and wish to make the following comments and recommendations.

After a meeting with the MAPC Staff, City Staff, and their consultants, it was determined that the EIS was inadequate in several respects. MAPC agrees with these conslusions.

According to the EIS rating system, the Dry Creek Interceptor and the Bluff Street Gravity

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line are equally the most favorable alternatives, with other alternatives receiving a less favorable rating. It is felt, however, that the cost of the extra depth in ditching, restricted public and emergency vehicle access to Bluff Street, and replacement costs of the street, were all understated for the Bluff Street Gavity Line.

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Additionally, similar problems exist is most of the other alternatives. When these factors are considered, it is felt that Dry Creek Interceptor will be far the most favorable alternative. Therefore, MAPC supports and recommends the Dry Creek route over all other alternatives because (1) the cost; (2) public safety; (3) long-term environmental benefits and (4) less disruptive effect on the neighborhood during construction. Thank you for allowing us this time. Thank you.

(Applause, applause.)

HEARING OFFICER GOLDMAN: Thank you.

I recognize Keith Sanborn.

MR. KEITH SANBORN: Good evening, ladies and gentlemen. For the record, my name is Keith Sanborn. I am honored to be the President of the Dry Creek Association. I am a resident of Dry Creek. And I have a statement which is the reaffirmation by the Board of the Dry Creek ssociation, by the vote of the membership of the Dry Creek Association, in opposition to putting the sewer down Dry Creek.

The Dry Creek Board of Directors met on Tuesday, July 31, 1979, and voted unanimously to reaffirm to the Environmental Protection Agency the stand taken by the vote of the Dry Creek Association membership as being unalterably opposed to the construction in Dry Creek of the proposed interceptor sewer.

The next portion of our statement is taken from a report written,at the request of the Environmental Protection Agency, by Professor Lewis B. Bustyeager, Professor of Biology, dated September 21, 1978. And it is quoted for the reason that it succinctly states the destructive affect for a long-term, if this sewer is allowed to go down the Creek.

Quote, "Dry Creek, within the Dry Creek area, is a unique natural area within the City Limits of Wichita. This woodland with its heavy understory of shrubs, vines and small trees, mixed with the extensive backyard of landscaping, form an area desirable both as an aesthetic area for local residents, as well as an important green area, within the City.

"Too much of Wichita's riparian stream-edge habitat is being bullnozed out of existence, into sterile channels, lacking in species and habitat diversity and the pleasing aesthetics of natural vegetation."(Three words omitted that do not change the sense.)

To continue, "This project as planned will destroy too many of the large nesting trees, will significantly increase the erosion and runoff damage by removing the trees that currently protect the banks, will result in channelization of the stream, in the name of protecting the sewer, and will leave a vegetative scar that besides destroying the habitat, will increase intrusion into the area by motorcycles and people who would disrupt the area for use by the local residents, and the avafauna."

The minister raised some questions that deserve some answers. I am going to suggest my conclusion to you and I am just going to speak as a person here. Many of our members have a lot of concerns and they have given a lot of thought to it.

The minister raised some important questions because I hope to convince you, by what is in the report, that there has been an conserted effort to play on the fear of people elsewhere. There is nothing in the Dry Creek Association's position which seeks to harm any other human being. There is nothing in the Environmental Impact Statement which supports the fear statements, No. 1, by the City Staff, that the entire Bluff Street will have to be blocked off, not so. Also, not doubling the cost.

There is nothing to the statement that danger to children will be increased. One has only to walk the streets of Wichita and see the vast projects going on about the City to see that this cannot be a consistent condition but only a scare statement.

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Our entire City--a good example, try driving up Grove, it is not proper to suggest to you that this matter should be cited out of fears. It is a fact, and Dr. Distlers report shows, that the comparison of the destruction of the trees is not a matter of 15, as has been suggested to the good minister. But it is on the order of 134 or so to about 45. And even that destruction need not take place.

The Metropolitan Area Planning Commission, and I have the permission to quote a member who was present, 10 minutes before their adjournment to a meeting where no citizens had any notice or any chance to attend, when they had to vacate the room so that the City Commission could have it at 4:30, was handed a request to approve the Dry Creek alignment. They did not consider it. They did not review it. And Mr. Jerry Coe, who is a member of that body, gave me permission in preparation to a City Commission meeting, just so state.

And there is a gentleman here who was present that night, who can verify that instead of a review by the Metropolitan Area Planning Commission, there was a hurried, cursory, no-consideration stamp of approval to a request by a member of the City Engineering Staff.

The principal Agency, which has the responsibility in Sedgwick County to directly advise the City Commission and the Board of County Commissioners, the Environmental Advisory Board, unanimously stated in their recommendations that the sewer not go down Dry Creek. And I hope the State Environmental gentlemen--although I would have hoped that they would have delved deeply into it, would realize that only the official body that was asked to comment that has the direct responsibility for environmental concerns in this community, unanimously voted to reject going down Dry Creek because of its terrible destructiveness.

There is nothing temporary about taking 40 years for an area to recover. Particularly, when you consider the life of the project is estimated at 50 years. And that, ladies and gentlemen, is--if you will read the statement, a bald fact that there is no pretext of replacing what will be destroyed.

One reason that there is no pretext at so doing is because they are incapable of doing it. They are incapable of doing it because they can't put back the overstory of trees, which are essential to protect that bio-system. The entire tree nursery growth for 40 years will be wiped out because the trees from last year and the year before, and the year before, are now growing to replenish this park, which is unique to this community. Not because we say so, who live there and love it, but because the experts who were asked to write the report and make a recommendation to the Environmental Protection Agency of the United States, say so.

People like to conserve and nobody likes to waste money. It cannot be supported that going down Dry Creek is less expensive. Zero expense has been projected for the acquisition of the right-of-way, which does not exist, to put a 36-inch sewer down some place in the confines of the right-of-way that has already been completely used up by an existing sewer.

It is not permissible to destroy this environment again. And it is not within the terms of the grants. It is not permissible to use an easement for drainage to put in sewers. It is, however, permissible to use the utility easements in the City streets.

I don't know if you remember Diagram No. 14, which shows an alignment going down Bluff Street. It is approximately the same distance by eye upon a map, to go straight on down Bluff Street in front of this Church, to the connection, as it is to turn west and go over to

George Washington Boulevard.

This remaining portion of Dry Creek is the only part left left. As little as two years ago there was substantially more of Dry Creek but it has been bulldozed out of existence, if you will just go to Dry Creek and look south down Pawnee Avenue Bridge.

That is the respect for our natural resources which are valued, which has been shown by the Municipal Corporation of the Cith of Wichita.

The cost of acquiring right-of-ways and easements from people who will not stand by and see a valuable unique natural resource destroyed, will have to be added to the cost that will put the Dry Creek alternative substantially above other alternatives considered, and other alternatives which are available, which don't require going west on Bluff--on Kinkaid.

If you merely consider money, you can't justify it. If you consider the very reason why Congress passed the Environmental Policy Act and created the Environmental Protection Agency, you have a 100% no vote from the affected responsible local agency, which was requested to make a report.

It was requested to make a report directly to the Environmental Protection Agency by a City Staff member at a meeting, at which I happened to be present, and the members of our Association didn't even know that they were going to vote on it until shortly before the meeting. They told the Agency that it could not respond to the request of the Environmental Protection Agency for a direct comment.

I suggest to you that that shows the weakness of the position taken by what is called the City Staff, which I assume to be the Engineering Department. When an agency with the responsibility to make a response is directly requested by the agency responsible in this United States, and is advised by Staff members that it cannot do so, it bespeaks the weakness of the position. There is nothing personal, whatsoever, in my remarks. They are only designed to demonstrate that if you will take away the fear, if you will quit trying to equate temporary inconvenience with 30 and 40 year destruction, if you will talk about the cold heart cash that you are going to have to spend, I do not see how you can justify the almost casual destruction of a valuable resource, which isn't going to be replaced.

If you will look in the Impact Statement and in the reports that accompanied it, and we don't have all of them, and I haven't gotten to read all of them, and if you think I am taking some time, it is because there is a whole mass of data there and I want to just go by the Board without a challenge if it is inaccurate, but I understand that there is or will be in the Wichita City Library, those reports. I understand from Mr. Crisp that they are going to be sent.

Compare the discussion of the area down in Plainview that they walked, that is going to be effected, with the discussion of what is up in the Dry Creek area, and you will see that there is a sterile absence avian life, where it is abundant, with more than 100 species, over in this natural park, which deserves to be protected.

There is a report by a gentleman in Kansas City that seeks to convince that there is not going to be any cost to anybody including the homeowners from the destruction of the trees. And the justification for that is that a lot of those trees are within the easement anyway. So they shouldn't complain.

It defies just ordinary common sense to say, in a report that says wooded areas would be worth 2 to 5 thousand dollars more per lot, that there isn't going to be any loss economically, which is not listed in the totals for the alternative.

If the accumulative effect of such ideas is put against the cold hard facts, or rather the warm, green, living facts, of this Creek, you just have to take leave of ordinary common sense to rationalize that it is only those people down on the Creek that are going to be temporarily be inconvenienced anyway, so let's just put it through there anyway because the line drawn down there was drawn several years ago by a City Engineer, and therefore, it doesn't matter what is inbetween.

There is one thing that is also missing that I believe needs to be discussed. And I hope in the Final Impact Statement it will be. It isn't right to take a whole system, to destroy a good part of it, with no regard whatsoever to the environment. And then suggest that the only thing involved is what is left.

The Environmental Agency of the United States should not become a partner in an overall operation that does not inform the citizens of its several parts, that does not seek to preserve, or respect, or comply with any kind of respect for the environment, and then when they want to put a wink to the park that will be adversely affected, to say we are only talking about Dry Creek.

We are not indigenous population to be manipulated. We are citizens, and we are human beings, 50 and we are entitled to domestic tranquillity, and the enjoyment of our community. The Environmental Impact Statement makes use of a noise study that was used to ram through without environmental impact statements and studies, and as a part of which, the sewer was run down George Washington Boulevard, which the Region VII Environmental Protection Agency has said was an inadequate study. And another study ought to be done.

50 The noise level that they claim will be generated exceed the safe levels for damage to human hearing, which are in the noise level documents which have been adopted after--I believe it is the National Academy of Science if I remember that part of it, as safe noise levels. And I don't think the Environmental Protection Agency can give its imprimatur to that type action.

There are numerous other people that have to be heard, and there are numerous other important matters that are glossed over, but I don't believe any of your speakers will be able to refute the report which was made to the Environmental Protection Agency as a part of the study of that Creek.

Don't destroy the Creek because it is not a moral, economical, humane, or sensible thing to do.

HEARING OFFICER GOLDMAN: Thank you, Mr. Sanborn.

(Applause, applause.)

HEARING OFFICER GOLDMAN: I recognize Wendy Sanborn.

MS. WENDY SANBORN: I have always understood that the EPA is there to protect the environment. In this statement, there is nothing said about the animals, and the birds, that are in there, in Dry Creek.

I have lived there all my life, except for the first 6 months of it, and I have grown up playing in the Creek, around it. I know practically every inch of it. I know there are possums. There is a family of raccoons right now near our home. There are rabbits. All kinds of birds. There is no place else for these animals to go.

If construction goes through, for one thing, it is going to scare them away, and they have nowhere to go. There is nowhere else that they are going to be protected.

I have had friends come to my home and they have told me they can't believe that an area like this exists in Wichita. It is true, there is no where else like this. It is completely natural. I don't think that Dry Creek should be turned into a sterile, unsightly, ditch or trench. And you can see what has happened south of Pawnee, and I don't want that to happen to my Dry Creek. Thank you.

(Applause, applause.)

HEARING OFFICER GOLDMAN: Thank you,

Ms. Sanborn.

I recognize Patricia E. Nelson.

MS. PATRICIA E. NELSON: Thank you. Good evening. My name is Patricia E. Nelson. I am the President of the Archeological Association of South-Central Kansas. Our group is mostly members who live in the City of Wichita but we do represent approximately 5 county areas surrounding the City of Wichita.

Prior to tonight's public hearing, we sent two communications to the Environmental Protection Agency concerning the Dry Creek interceptor system. Tonight, I would like to present to the EPA and to the public, the people of Wichita and to you sitting here, our position.

What I am about to relate to you has not been considered by the City of Wichita. It has not been considered by the Environmental Protection Agency. To satisfactorily resolve our concern and to meet EPA requirements, environmental and mitigated measures must be accounted for on all aspects of the Dry Creek interceptor system.

51 The draft EIS does not contain any reference to mitigated measures of adverse impact on known cultural resources present, Part B of the Construction Plans. This refers to alternative routes, A,D and E

of the draft EIS, and if you want to check your fact sheet that we have tonight, that is 1,3 and 3a.

ASK recognizes that EPA did seek information provided by archeological surveys covering this project. However, the reports prepared by Roger Boydstrom in March of '78 were under difficult climatic conditions and could not include pertinent information. That is now 16 months old.

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Due to errosion, two archeological sites 14ST527 and 14ST528 were identified after the data report provided by the City Archeologist Office. 14ST527, one of the two latest sites lies within direct impact of the 1200 foot 24-inch sewer extension, which crosses the Creek south of Pawnee, and west of George Washington Boulevard.

As recent as one week ago, a third site was located east of George Washington Boulevard and west of Oliver. Because of these latest finds, it is the opinion of ASK that Gypsom Creek, extending from the canal route to Mr. Vernon is likely one area of continuous occupation.

Indications are that this is a major settlement area for prehistoric people with occupations strung out along, and with the potential of extending into surrounding areas, which would be up here to Dry

Creek.

Cultural materials along Gypsom Creek did not appear until after earth-moving activities were done by the flood control. Due to urbanization of the Dry Creek impact area and the existence of deeply buried sites adjacent to this area, archeological indications are not possible to see from surface surveys.

51 Previous archeological investigations during the Summer and Fall of 1978 along the disturbed section of Gypsom Creek has identified 14ST515 as a possible village where pottery making people lived. A radio carbon date of 1010 A.D. plus or minus 75 years confirms the significance of this archeology rich area.

East of this site is 14ST528, a bicenkil site of as yet undetermined age. Even further east, is 14ST527, a second ceramic making site which suggests more habitat. The EPA has received our archeological surveys and a letter from ASK suggesting precautionary measures to control adverse impact of cultural resources.

As of today, information interpreted by the EPA is out of date. Effective mitigated measures are necessary for Part A and Part B of the Contruction Plans. By EPA's own admission, it says, quote, "The potential for archeological sites on Dry Creek is a fact for Part B." An impact must be recognized, not ignored for

Part A. Effective mitigated measures to alleviate damage or destruction of cultural resources that are irreplaceable must be a part of the Environmental Impact Statement. ASK's concerns can be resolved in the following: (1) As part of the total monetary cost benefit,provisions must be made for professional archeologists to be present during all construction phases of Part A and Part B of this project.

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This must include archeologists being a part of the staking team and present during any earth moving. Prior to the initial date that construction begins, three archeological surveys spaced 90 days, 60 days and 30 days before earth moving begins, must be conducted to check for new evidence of cultural resources.

This applies to both Part A and Part B, or a total of six surveys. The professional archeologists must have the right to halt construction for a limited time. For 1 to 60 days, or any combination of, and as many times as deemed proper. He must do this to identify and preserve and recover cultural resources, when in his or her opinion it is necessary.

Budget monies must extend and include provisions for a field support staff to facilitate recovery of cultural materials as quickly as possible. Further monetary provisions must be available for preservation and interpretation of any cultural materials found. With this information made available to the public.

If the EPA considers ASK recommendations as unnecessarily stringent, then consult professional archeological opinion. A list for the EPA's benefit was provided in the December 8, 1978, ASK letter.

51 Since this EIS is a draft statement and will be revised, ASK will abide and respect professional opinions and recommendations over its own statement. But ASK will not accept any statement made by EPA concerning cultural resources pertaining to the Dry Creek interceptor project.

HEARING OFFICER GOLDMAN: Thank you, Ms. Nelson.

(Applause, applause.)

HEARING OFFICER GOLDMAN: I recognize Mary Alice Porch.

MS. MARY ALICE HORSCH: My name is Mary Alice Horsch, and I am the Chairman of the Wichita-Sedgwick County Environmental Resource Advisory Board. Our statement to EPA tonight is to relate to you happenings at our Environmental Resource Advisory Board meeting on Monday, July 23rd, 1979.

The ERAB Board urged the City Commission of Wichita to consider the short and long term environmental consequences of major construction through this last and unique biological community in the Dry Creek drainage basin. A motion was duly executed to recommend to the City Commission that assessment of the Environmental Impact Statement for the Dry Creek interceptor, Wichita, Kansas, is to agree with the Environmental Impact Statement in evaluation of impact on aesthetic and wild life as being dissimilar for the Dry Creek interceptor alignment and the Bluff Street-Kinkaid Gravity Sewer alternate.

The Environmental Resource Advisory Board, therefore, favors the Bluff Street-Kinkaid Gravity Sewer alternate. And further, that priority be given to restoration of any damage to the natural characteristics of the area.

The reasons for our decisions, and for our statement, will be given in a later statement by Dr. Youngman. Thank you for this opportunity to make a statement.

(Applause, applause.)

HEARING OFFICER GOLDMAN: Thank you. I recognize Wanda Sanborn.

MS. WANDA SANBORN: I am going to pass.

HEARING OFFICER GOLDMAN: I recognize Mark Bladcheck.

MR. MARK BLADCHECK: I pass.

HEARING OFFICER GOLDMAN: I recognize Art Youngman.

DR. ART YOUNGMAN: My name is Art Youngman. I am a member of the Wichita-Sedgwich County Environmental Advisory Board. However, the statement I am making tonight is not a statement I am making as a member of the Board or simply as a private citizen.

I and the other undersigned people, who have signed this statement, also will be making a statement as private citizens.

"We, the undersigned, agree with that portion of the EIS that confirms that the Dry Creek alternative would have the greatest impact on aesthetic and wildlife values of the area. And that the Dry Creek area supports what is probably the most diverse bird fauna within the Metro Wichita area.

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"This great diversity of bird fauna depends upon the maturity of the woodland and the diversity in the abundance of trees species. 1700 feet of construction through this area would have the potential of destroying most of the vegetative cover within the 2.7 acres of total easements or about 30% of the criterion woodland.

This amounts to a total of 276 trees

52 greater than 4½ inches and 286 trees less less than 4½ inches in diameter, as well as the dense brush of the understory.

This riparian corridor is a mature community having many large trees in the overstory and many small trees, woody shrubs and spacious vegetation in the understory, and unique because it is the last continuous woodland in the Dry Creek watershed.

Construction disturbance is temporary but the results of construction would change the community structure and even if replanting is accomplished according to EPA specifications, it is unlikely that the mature system similar to the one destroyed will develop within 20 to 30 years. Because the 21-inch sewer line constructed approximately 50 years ago was placed mostly by light equipment excavation, the present riparian community is at least 50 years old, and some portions may be considerably greater in age.

Under no circumstances is it likely that a mature system with it attendant bird faun will develop within the lifetime of the present residents. In 50 more years can we expect another major sewer line construction through the area? 53 The Bluff Creek Gravity alternative would be a greater temporary inconvenience to residence but would do far less damage to the integrity of the riparian woodland, less than 50 trees rather than the 118 as reported in the EIS, greater than 3.5 inches in diameter need be removed between Kinkaid and George Washington, or 5 to 6% of the entire riparian woodland, as compared to 30% for the Dry Creek alternative.

53 Slipliner, lateral hookup and gaithing construction is by light equipment excavation, which eliminates the greater damage by heavy equipment. The 21-inch sewer repair and streamcrossing activities could be designed to ensure that little damage need occur in the riparian corridor.

Slipliner construction for this section may be unnecessary since this sewer will carry only a small fraction of the present load. Integrity of this last woodland in the Dry Creek basin far outweighs the other categories in environmental impact included in the EIS.

Cost, noise, stream bank erosion, public inconvenience, and public safety are all temporary. The long term impact of this riparian woodland far outweighs the added cost and short term problems associated with the Bluff Street Gravity alternative.

We implore the decision makers to consider the long term consequences of major construction to this last unique biological community in the Dry Creek basin. And, in addition, take steps to protect the area from major alterations in the future." Thank you.

(Applause, applause.)

HEARING OFFICER GOLDMAN: Thank you.
I recognize Vern Bladcheck.

MS. BLADCHECK: I pass.

HEARING OFFICER GOLDMAN: I recognize Victor W. Pickering.

MR. VICTOR W. PICKERING: For the record, my name is Vic Pickering. I live at 2115 Bluff Court. Dry Creek divides my property near the center. The proposed Dry Creek interceptor sewer would cross at the rear of my property.

I have lived on the bank of Dry Creek on this property for over 16 years, and I believe I appreciate its beauty and its naturalness as much as anyone, within certain limits, that is.

Now it seems that a majority of Dry Creek owners are advocating build the sewer anywhere else no matter who is inconvenienced or how much. Just don't build it in the Dry Creek alignment.

Well, that would be real nice for some owners since they would be completely untouched. But the alternate route on Bluff Street would cause very limited access to the homes of some 28 families for an extended period of time during Bluff Street construction.

Dry Creek alignment passes through backyards and side yards. At least no one would experiencing limited access to their home during construction of the Dry Creek alignment.

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If the sewer was built in Bluff and Kinkaid Streets, it would still be necessary to place a liner in the sewer next to Dry Creek. This would necessetate almost as much work in the Dry Creek area as building the new sewer.

Now the primary reason I bought my property was to live in the house that is located there. I wanted to come and go, if and when I wish. I am unwilling to give up this right for any period of time, just to protect the appearance of my backyard, or that of other Dry Creek property owners.

To the best of my knowledge, every qualified professional engineer, who has knowledge of this project, has agreed that the Dry Creek alignment is the only logical route for the interceptor sewer. The Bluff Street route is estimated to increase the cost of the project from $786,000 to $945,000 or there abouts, with an increase of approximately $100,000.

Now I am here to tell the EPA, and any others that are interested, that if I had to pay it I couldn't afford my share of $160,000 worth of birds, trees and squirrels, while being unnecessarily being denied access to my home.

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There are some organizations and individuals who are not Dry Creek owners who have come forward to support the Bluff Creek route, all in the name of conservation and natural beauty, and who knows what else. I'd like to ask, what about conservation of the extra resources that would be required for the Bluff Street route, including fuel, Federal and City funds, and manpower?

It seems to me that there are some inconsistencies in thinking going on here. In my opinion, the Bluff Street route of this interceptor sewer is an absurdity, in that it unnecessarily denies some 28 families adequate access to their homes for a considerable length of time. It is just plain wasteful of natural resources and Federal and City funds.

I certainly hope that none of the people who would be denied access to their homes are naive enough to believe that this sewer can be built in Bluff Street and have the street remain open at the same time. Thank you.

(Applause, applause.)

HEARING OFFICER GOLDMAN: Thank you.

I recognize Ms. Dorothy Hummer.

(No response.)

HEARING OFFICER GOLDMAN: Ms. Hummer is not here.

I recognize Ms. Katherine Huntington.

MS. KATHERINE HUNTINGTON: My name is Katherine Huntington, and I live at 2113 South Bluff Court. My little request went in with a question mark because I realized that there would be very elegant speakers here. So I express my own views that we have a rare resource here and we should do most anything to protect it.

I do have to differ remarkably from our last speaker. I think squirrels and birds, trees and grass are awfully important. And I will live a long time with the inconvenience of walking a block or two, in order to protect some of these things. I think we just can't do any other way. Thank you.

(Applause, applause.)

HEARING OFFICER GOLDMAN: Thank you.

I recognize Howard Boyce.

MR. HOWARD BOYCE: No comment.

HEARING OFFICER GOLDMAN: Thank you.

I recognize Mrs. W. W. Stout.

MRS. W. W. STOUT: No comment.

HEARING OFFICER GOLDMAN: I recognize Bob King.

MR. BOB KING: I have no comment.

HEARING OFFICER GOLDMAN: I recognize Daniel P. Dune.

MR. DANIEL P. DUNE: I have no comment.

HEARING OFFICER GOLDMAN: I have a statement from Ms. Dorothy Hummer. For the record, it states:

"I object to being denied access to my home by routing the sewer down Bluff and Kinkaid. I give my vote, by proxy, to George McCain or Kathy McCune."

I also have a statement for the record, which I will read into the record, from the City Staff. 55 It is from the City of Wichita, Water Department, Office of the Director, City Hall, 8th Floor, 455 North Main Street, Wichita, Kansas 67202, dated July 27, 1979.

It is addressed to Mr. Edward C. Vest, EIS coordinator, U.S. Environmental Protection Agency, Region VII, 324 East Eleventh Street, Kansas City, Missouri 64106.

"Dear Mr. Vest: Enclosed for the record are comments prepared by City Staff and our engineering consultants on the Dry Creek Interceptor Draft Environmental Impact Statement.

"We request that these comments be included as a part of the testimony received furing the public hearing scheduled in Wichita on August 1, 1979. We are sending these comments in advance of the hearing since at this time we do not intend to present them verbally at the hearing.

"During the Wichita City Commission meeting of Tuesday, July 24, 1979, we presented our comments to them and recommended that they adopt a resolution in support of the Dry Creek alignment.

"The City Commission, however, declined to take further action on the project until the public hearing has been concluded. A copy of the minutes of that meeting is attached for your information.

"The City Staff position is that the Dry Creek Interceptor remains as our first choice since it is (1) less expensive, (2) less disruptive to the neighborhood during construction, (3) is not as hazardous to the public as are the other alternatives and (4) not disruptive to the long term environment.

"Very truly yours, John D. Wynkoop, Director of Water and Water Pollution Control."

(The following are attachments included in the foregoing letter.)

"The Wichita-Sedgwick County Department of Community Health, Office of Environmental Health, July 16, 1979. To Mr. John Wynkoop, Director of Water and Water Pollution Control. From: James F. Aiken, Jr., Environmental Health Director. Subject: Environmental Analysis of the EPA Draft Environmental Impact Statement, Dry Creek Interceptor, Wichita, Sedgwick County, Kansas.

"A careful review of Table V, Evaluation of Alternatives, Pages 77 and 78, and the entire discussion provided in the Draft Environmental Impact Statement leads to a conclusion that the ranking is essentially correct with the exeption of the Public Safety item and the Cost item.

"The discussion in relation to Public Safety for the Dry Creek alternative and the Bluff Street alternatives indicate: Dry Creek Alternative, Page 49, 'This alternative would have relatively minor impact on public safety. In the area between the intersection of Bluff and Mt. Vernon, and George Washington, construction activities would be in an area remote to normal pedestrian or vehicular traffic. As such, public safety impacts on both pedestrians and vehicular traffic are minor. Within the construction area along George Washington sufficient off-road right-of-way exists to minimize traffic disruption'.

"Bluff Street Gravity and Force Main Alternatives, Page 58, 'The Bluff alternatives present a special impact on public safety in regard to the selection of routing along Bluff and Kinkaid. This portion parallels a route taken by area school children who attend Griffith Elementary School. The natural curiosity of young children makes them particularly susceptible to the dangers associated with trenching operations.'

"In Table V both the Dry Creek alternative and the Bluff Street alternatives are ranked as a moderate impact (2). It is evident that the Dry Creek alternative would have a minor impact on public safety due to the remote nature of the construction area and should have a corresponding ranking of (1).

"With this one change in the ranking, a summary of Table V without the cost included would be as follows:

Table V: Evaluation of Alternatives Summary

Impacts	Alternatives				
	Dry Creek	Mt.Vernon Gravity	Mt. Vernon Force Main	Bluff Gravity	Bluff Force Ma
Noise	2	2	2	2	2
Aesthetics	3	1	1	2	2
Wild Life	3	1	1	2	2
Erosion	2	1	1	2	2
Public Safety	1*	3	3	2	2
Public Inconvenience	1	3	3	2	2
Energy Use	0	0	3	0	3
Total Environmental Impact Ranking	12	11	14	12	15

*Reduced from 2 to 1

On the basis of this ranking, the Mt. Vernon Gravity alternative would have the least environmental impact with the Dry Creek and Bluff Street Gravity alternatives tied for second. However, there are two other areas of concern which should be included in the overall evaluation--costs and time of construction.

Table V, on Page 78 of the Draft EIS, includes cost (present worth) in the ranking on the basis of (1) to (5), lowest cost to highest cost. This does not provide a direct comparison with the other items on the same basis (1) to (3), for minor to major impacts.

The Dry Creek alternative is the lowest cost with the Mt. Vernon Gravity alternative being 1.9 times as high and the Bluff Street Gravity alternative being 1.2 times as high. A method of including the cost in the ranking on the basis of (1) for the lowest, and (3) for the highest with the in between costs proportioned is suggested.

The other factor that should be included in the ranking is the time of construction (days). The length of construction time effects the severity of the other environmental impact items and is of sufficient importance in highly developed or sensitive areas to be included as a separate item. It is suggested that the number of days for construction to be proportioned from (1) to (3) on the same basis as the cost.

Including the cost and construction time in the summary of Table V indicates the following:

Table V: Evaluation of Alternatives Summary

	Dry Creek	Mt.Vernon Gravity	Mt.Vernon Force Main	Bluff Gravity	Bluff ForceMain
Total Environmental Impact Ranking	12	11	14	12	15
Cost (present worth) Amount	$735.682	$1,398,723	$1,503,786	$881,718	$1,160,108
Ranking(1)	1.0	2.7	3.0	1.4	2.1
Construction Time: Days	135	300	185	170	120
Ranking(1)	1.2	3.0	1.7	1.6	1.0
Ranking Summary	14.2	16.7	18.7	15.0	18.1
Ranking Order	1	3	5	2	4

(1) Calculations attached

This evaluation provides a definitive conclusion that the Dry Creek alternative should be selected.

While my comments and conclusion have been developed on a straight-forward basis in relation to the information contained in the Draft Environmental Impact Statement, it is likely that an engineering analysis of the alternatives will indicate necessary construction modifications for the Bluff Street Gravity alternative that will result in not only increase in cost but also increased environmental impacts along Bluff Street as well as in the Dry Creek are due to the sewer liner construction.

It is my professional environmental opinion that the cummunity will be better served by proceeding with the Dry Creek alternative for the sewer interceptor."

Signed: James F. Aiken, Jr., Environmental Health Director.

ATTACHMENT
Ranking Calculations for Cost & Construction Time

1. Cost

Dry Creek
1+(((3-1)÷((1503786 ÷ 735682))x((735682÷735682)-1))=1.0

Mt. Vernon Gravity
1+(((3-1)÷((1503786÷735682)-1))x((1398723÷735682)-1))=2.7

Mt.Verson Force **Main**
1+(((3-1)÷((1503786÷735682)-1))x((1503786÷735682)-))=3.0

Bluff Gravity

1+(((3-1)÷((1503786÷735682)-1))x((881718÷735682)-1))=1.4

Bluff Force **Main**

1+(((3-1)÷((1503786÷735682)-1))x((1160108÷735682)-1))=2.1

2. Construction

Dry Creek

1+(((3-1)÷((300÷120)-1))x((135÷120)-1))=1.2

Mt. Vernon Gravity
1 +(((3-1)÷((300÷120)-1))x((300÷120)-1))=3.0

Mt. Vernon Force **Main**

1+(((3-1)÷((300÷120) -))x((185÷120)-1))=1.7

Bluff Gravity

1+(((3-1)÷((300÷120)-1))x((170=120)-1))=1.6

Bluff Force **Main**
1+(((3-1)+((300÷120)-1))x((120+120)-1))=1.0

CITY STAFF AND PROFESSIONAL ENGINEERING CONSULTANTS COMMENTS ON DRY CREEK ENVIRONMENTAL IMPACT STATEMENT PREPARED BY ENVIRONMENTAL PROTECTION AGENCY

The following is a summary of comments with reference to the engineering aspects incorporated into the Environmental Protection Agency's Draft Environmental Impact Statement for the Dry Creek Interceptor for Wichita, Sedgwick,

NO ACTION ALTERNATE

We support the Environmental Protection Agency's stand on the "No Action Alternate". The No Action Alternate is not feasible due to the fact that the existing flow capacity of the Dry Creek Sewer is insufficient to transport sewage flows occurring in the basin. In addition, the structural condition is questionable and could lead to line failure.

BLUFF STREET FORCE MAIN AND MT. VERNON FORCE MAIN

We support the Environmental Protection Agency's position that pumping of the wastewater would be extremely expensive and would result in excessive high energy use. Costs projected for maintenance and emergency work required during mechanical failure should be higher than shown. Increased noise levels due to pump station operation and standby power system operation, and exercising were not addressed and should be discussed. Depending upon the type of enclosure provided for the standby power system, noise levels during its operation could reach levels greater er than the operation of most heavy construction equipment. These noise levels during its operation would be present within the area on a continuous basis.

It should be noted that pumping is an intermittent operation. That is wastewater is stored for a short period of time and then pumped to a receiving stream or receiving sewer. Thus pumping during a wet weather period could artificially create a surcharing condition in the receiving sewer. Thus pumping would not actually solve the problem, but would merely shit the problem to a downstream area.

It should also be pointed out that the Mt. Vernon Pumping Alternate would be discharging wastewater into a receiving sewer system which does not have design capacity to accommodate the flow.

BLUFF STREET GRAVITY ALTERNATE

In reference to this alternate, the following items should be discussed within the EIS to provide a better understanding of the work to be completed along Bluff Street.

Sanitary sewer construction along Bluff Street:

1. Sanitary sewer trenching depths will range from 21 feet to 17 feet in depth.
2. This type of construction would result in the probable entire removal of Bluff Street and Kincaid Street.
3. A large volume of soil would have to be excavated from the trench and either hauled directly from the site or stored along the right-of-way complicating the construction limits.

4. Several utilities currently exist in the existing Bluff Street right-of-way (e.g. 4" gas line along the east side with five crossings, telephone along the west side and 8" waterline along the east side.)

5. To provide adequate public safety along Bluff Street, Bluff Street would have to be barricaded shut during construction. This would force school children to select alternate pedestrian routes to school which may have a direct bearing on public safety.

6. Barricading Bluff Street and Kincaid in conjunction with complete removal of Bluff Stree and Kincaid will result in loss of access to residents along Bluff Street, Kincaid, Bluff Court, Clark Court to park outside of the construction area and walk to their homes.

7. A closing of a street by barricading and the removal of the street obviously presents a problem for emergency vehicle access.

The following is in reference to the engineering aspects for the placement of the 10" slipliner in the existing 21" Dry Creek Sanitary Sewer:

1. Prior to the installation of the 10"slip liner, the five existing creek crossings should be modified or reconstructed to protect the conduit from stream bed erosion which could result in undercutting the pipe and washing out of the crossing.

2. Of the four lateral sewer connections to the existing 21" Dry Creek sewer main, three laterals need additional construction work in conjunction with the modification of the existing manholes. The first modification would be major construction of creek bank protection to prevent any additional bank erosion which would result in eventual pipe damage to one lateral. The second modification would be to replace broken pipe for approximately 10 feet upstream from an existing manhole on a second lateral. The third modification would be the abandonment of the third lateral which has severe structural damage and reconnectio

of house services to the main line.

3. As pointed out in the EIS, access will be required for the reconnection of services to the 10" slip liner. This will mean seven separate excavations to locate and make the house service connections.

4. Each of the seven manholes which exist along the 21" main should be replaced. It may be possible that the second manhole south of Mt. Vernon could be abandoned. It currently is exposed on all sides to the Dry Creek stream channel.

The work outlined above consists of approximately 20 separate locations where work functions must be completed within the Dry Creek corridor. This type of work will result in damage to the existing environment.

MT. VERNON GRAVITY SEWER ALTERNATE

We support the Environmental Protection Agency's position that the Mt. Vernon Gravity Sewer Alternate is expensive and would result in placing wastewater in a main sewer outfall line which does not have design capacity. In addition, utilities along the Mt. Vernon Street right-of-way are extensive enough to nearly eliminate any available corridor for installation of a sanitary sewer. Construction in this area would likely result in the closing of major parts of Mt. Vernon. This would result, obviously, in major problems with public safety and public inconvenience. In addition to a sewer line being placed in Mt.,Vernon this alternate also calls for the installation of a 10" slip liner in the existing Dry Creek Sanitary Sewer.

The same engineering problems would exist with the installation of the slip liner in the Dry Creek area as outlined for the Bluff Street Alternate above.

DRY CREEK SANITARY SEWER ALTERNATE

We support the Environmental Protection Agency's position concerning the environmental impact resulting in the installation of the 36" diameter sanitary sewer down along the Dry Creek corridor.

COST ESTIMATES FOR ALTERNATES

In general, we support the cost estimates as presented for the alternatives in Appendix 2, except for the following discrepancies.

We believe that the cost for installing the 36" reinforced concrete pipe for the PVC liner down Bluff Street at a depth of between 21 and 17 feet will have a higher unit cost than the installation of the same pipe in a maximum of 14 foot deep trenches in the Dry Creek area. We also believe that the quantity estimated for pavements removal and replacement should be expanded to include the entire removal of Bluff Street which would add approximately 4,000 square yards of pavement removal and replacement. Also included in the Bluff Street Gravity Alternate, should be the cost for replacement of five creek crossings, the cost for erosion protection consisting of 380 cubic yards of gabions and 200 square yards of rip rap, and the cost for seven-house service reconnections to the 10" slip liner. Inclusion of these cost items would increase the construction cost by $203,950.00 from $755,090.00 to $950,040.00. This increase in cost is outlined in the attached table.

The cost estimate for the Bluff Street Force Main should be modified to include a cost for modifying five creek crossings, installing erosion protection consisting of 380 cubic yards of gabions and 200 square yards of rip rap, and reconnection of seven-house services. The cost to complete these items of work is estimated to be $60,600.00. This would increase the total construction cost from $889,690.00 to $947,290.00.

The construction cost estimated for the Mt. Vernon Gravity Alternate should be modified to include the increased cost to install the 36" reinforced concrete pipe with the PVC liner at greater depths, the five creek crossings in the Dry Creek area, consisting of 380 cubic yards of gabions and 200 square yards of rip rap, and the reconnection of seven-house services. The cost estimated for this additional work is $126,400.00 which would increase the total construction cost for the Mt. Vernon Gravity Alternate from $1,263,400.00 to $1,389,800.00.

The cost estimate for the Mt. Vernon Force Main Alternate should be modified as outlined for the Bluff Street Force

Main Alternate. This would increase the total construction cost estimate for the Mt. Vernon Force Main by $60,600.00 from the estimated total cost of $1,041,000.00 to $1,101,600.00.

Using these increased construction costs, and assuming that the costs estimated by the Environmental Protection Agency for design, contingencies, interest during construction, and original design will remain the same. A cost effective analysis should be revised as shown in the attached table. By review of that table, it can be seen that the analysis indicates that it will cost an additional $349,986.00 to build the interceptor sewer in Bluff Street. The actual increase cost to the taxpayers of the City of Wichita, assuming a 75% grant for those items which are eligible under the Enfironmental Protection Agency Grant Program, is $93,969.00.

REVISED
COST EFFECTIVE ANALYSIS

(7% INTEREST)

Cost	Interest Factor	Dry Creek	Mt.Vern. Gravity	Mt.Vern. Force Main	Bluff Gravity	Bluff ForceMain
Capital Cost	1.00	786,237	1,646,080	1,324,917	1,149,441	1,157,220
Operation and Maintenance	10.594	0	0	272,477	0	101,172
Salvage Value	0.2584	-50,555	-120,957	151,008	-63,773	-37,684
Total Present Worth		735,682	1,525,023	1,564,386	1,085,668	1,220,708
City of Wichita's Share of Capital Cost		202,310	434,913	349,692	296,279	296,940

TABLE A: BLUFF GRAVITY AND ADDITIONAL COSTS

Quantity	Unit	Item	Unit Cost	Total	Salvage
2,335	LF	36"CRP-PVC Liner (Added Excavation Depth)	$10/LF	23,350	---
5	EC	Creek Crossing Replacements	4,000/EC	20,000	---
4,000	SY	Pavement Removal and Replacement	$30/SY	120,000	---
380	CY	Gabions	$75/CY	28,500	---
200	SY	Rip Rap	$50/SY	10,000	---
7	EC	House Service Reconnections	$300/EC	2,100	---

	$203,950
EIS COST ESTIMATE	755,090
TOTAL REVISED COST	959,040
DESIGN	54,500
CONTINGENCIES	75,509
INTEREST	11,892
ORIGINAL DESIGN	48,500
TOTAL CAPITAL COST	$1,149,441

TABLE B: BLUFF FORCE MAIN - ADDITIONAL COSTS

MT. VERNON FORCE MAIN - ADDITIONAL COSTS

Quantity	Unit	Item	Unit Cost	Total	Salvage
5	EC	Creek Crossing Replacements	$4,000/EC	$20,000	---
380	CY	Gabions	75/CY	28,500	---
200	SY	Rip Rap	50/SY	10,000	---
7	EC	House Service Reconnections	300/EC	2,100	---
				$ 60,600	

BLUFF FORCE MAIN EIS COST ESTIMATE	$886,690
BLUFF FORCE MAIN ADDITIONAL COSTS	60,600
TOTAL REVISED COST	947,290
DESIGN	62,500
CONTINGENCIES	88,689
INTEREST	10,241
ORIGINAL DESIGN	48,500
TOTAL CAPITAL COST	$1,157,220
MT. VERNON FORCE MAIN EIS COST ESTIMATE	$1,041,000
MT. VERNON FORCE MAIN ADDITIONAL COSTS	60,600
TOTAL REVISED COST	$1,101,600
DESIGN	70,500
CONTINGENCIES	104,100
INTEREST	18,217
ORIGINAL DESIGN	48,500
TOTAL CAPITAL COST	$1,342,917

TABLE C: MT. VERNON GRAVITY - ADDITIONAL COSTS

Quantity	Unit	Item	Unit Cost	Total	Salvage
6,580	LF	36" CRP-PVC Liner (Added Excavation Depth)	$10/LF	$65,800	---
5	BC	Creek Crossing Replacements	4,000/EC	20,000	---
380	CY	Gabions	15/CY	28,500	---
200	SY	Rip Rap	50/SY	10,000	---
7	EC	House Service Reconnections	300/EC	2,100	---
				$126,400	

EIS COST ESTIMATE	1,263,400
TOTAL REVISED COST	1,389,800
DESIGN	70,500
CONTINGENCIES	106,090
INTEREST	31,190
ORIGINAL DESIGN	48,500
TOTAL CAPITAL COST	$1,646,080

COMMISSIONERS PROCEEDINGS

Date: July 24, 1979

Motion carried 4-0

Dry Creek Environmental Impact Statement and Resolution, presented.

In August, 1977, the City of Wichita made a construction grant application to the Environmental Protection Agency for the replacement of the Dry Creek Interceptor Sewer, which according to an engineering report was hydraulically overloaded and structurally deteriorated due to age.

After review of the project report prepared by the City's engineering consultant, Professional Engineering Consultants, E.P.A., offered the City a grant on September 30, 1977. Construction plans and specifications were later approved on February 27, 1978.

Some property owners in the project area objected to the planned construction since, in their opinion, it would destroy wildlife habitat as well as the wooded area.

Subsequently, on July 26, 1978, the E.P.A. halted further work on the project and ordered the preparation of an Environmental Impact Statement for the area.

The draft of the E.I.S. has now been

completed and a public hearing has been scheduled for August 1, 1979, at 7:30 p.m. at St. Christopher's Episcopal Church, 2211 South Bluff.

Of the five alternatives studied by E.P.A. there are two which are the preferred routes and are given equal environmental ranking by E.P.A. They are the Dry Creek and the Bluff Gravity.

The City staff and their consultants, P.E.C., have completed their review of the E.I.S. and unanimously recommend the Dry Creek as the most cost-effective route that meets the long range environmental objectives. Copies of their statements with their conclusions are provided.

In view of E.P.A.'s request for comments on the E.I.S. during their scheduled public hearing, it is recommended that the City Commission consider the adoption of the Resolution which supports the Dry Creek route.

City Manager reviewed this matter and the background of the project which led to the reason for the environmental impact study.

Director of Water reviewed the evaluation which was done on alternative routes and answered questions by the Commission. He stated that staff and the consultants favored the Dry Creek route. He also felt a position expressed by the Commission by resolution would be more effective than a staff statement.

Keith Sanborn, member of the Dry Creek Association, expressed opposition to the Dry Creek route. He indicated that no notice had been received of this matter being before the Commission today, and he took issue with the resolution which he contended was not based on a factual analysis of the E.I.S. nor of the cost. He felt that the Dry Creek route would be very disruptive to the area and urged the Commission not to use this resolution to tip the scales for the public hearing.

Discussion was had and Mayor Casado confirmed that the Commission previously had taken the position of supporting the Dry Creek route, but questioned the advantage of renewing that just for the public hearing.

Porter moved that the action on this matter be deferred until after the findings are received from the public hearing to be held August 1. Motion carried 4-0.

The Commission recessed at 10:35 a.m. and reconvened at 10:58 a.m.

Ad hoc Committee on Permits and Code Enforcement presentation pertaining to funding of Central Inspection Division, presented.

City Manager stated that the Committee has studied the possibility of separating the inspection function in the City budget and place that Division operation on a utility-type basis. He stated that all of the fees identified by the Ad hoc Committee can be used as revenue and the income generally does equal the expenses of that Division. He stated that operating the Division as a utility could be done if it is the desire of the Commission. He further stated that the main concern is that certain of those functions, such as the Sub-standard Housing Inspection, not be deleted and have to be picked up by general property taxes.

*Commissioner Porter excused for a short time.

Mr. Denton stated that he had no objection to the recommended change and pointed out that it would make it possible in the future that when the revenue decreases or increases that Division personnel would be adjusted accordingly.

Discussion was had and it was suggested that a sunset clause could be provided for one year trial operation.

*Commissioner Porter excused for a short time during Mr. Watson's presentation.

Rick Watson, Chairman, Ad hoc Committee on Permits and Code Enforcement, reviewed the Committee's findings. He stated that it was generally felt that a utility-type operation would be beneficial to the construction industry in timely inspections, and since the function is supported by the industry through fees paid, that the revenues should be used in that Division and not for related budget activities.

The following persons spoke in support of the Division being placed on a utility basis:

Bill Goebel,
Jerry Simpson,
Allen Inlow

It was primarily the feeling that there would be better utilization of dollars plus increased flexibility in the overall operation of the Division, and the service delivery would be enhanced.

(This completes the Statement presented for the record by the City Staff.)

HEARING OFFICER GOLDMAN: I am going to open up this meeting to questions now.

Yes, sir, please state your name?

MR. F. E. JOHNSON: I am F. E. Johnson. I live in an important part of the City, Plainview. I think that the people who study this Environmental Statement ought to give Pat Nelson's thoughts considerable consideration. The reason I say that is that roughly four or five years ago the Flood Control took a notion to dig out our Gyp Creek and Dry Creek and in its place they shipped in from New York City, the Hudson River and put it there.

56

Now you want to do the same thing to the rest of this area. My question is, is this sewer needed? I rather think that probably it isn't needed, at least at this time, and maybe not for another 25 years. Because our City does some very foolish things,(applause) and now before the Flood Control took over and spent two million dollars to put the Hudson River between Hillside and George Washington, that was a wonderful area for my birds, my wildlife, and now you choose to take more of it, when it isn't needed.

Somebody wants a profit from doing this. And it is not needed. Now you are going to move up and take some more of this environment. These birds have got no place to go. This wildlife has got no place to go. You took our little Plainview area, the best place in the City--you wouldn't say it but I say it--the best place in the City. The wildlife of those birds, that wildlife that is in there, they are going to flee and be the end.

Now you spent on Dry Creek alone to join into Gyp Creek another 700,000, to destroy some more. Now it is a shame if you haven't been over there to look. Come over, you won't have to go to New York to see Hudson. Go down there. Now I am very much concerned just why--and I think we ought to have a study made just to see if it is needed. (Applause.)

I'll even crawl through the sewer with you, and I mean that. I mean, literally, I'll do it. I am a retired engineer, I ought to know some of the problems. I'm a retired engineer and I don't mind being retired because me and my wife are pretty busy, trying to save some of the things that people should stand for.

Now what I'm saying, I would think those engineers--and there is a way to go through that sewer to see if it is needed, and see whether it is in bad shape like you want to say it is falling in, I doubt it, I doubt it very much.

Now I don't know whether I said enough

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or not, but thank you very much. I am F. E. Johnson.

(Applause, applause.)

HEARING OFFICER GOLDMAN: Thank you.

Would anybody else like the opportunity to speak, make a comment?

Yes, would you please state your name?

MR. HONDUS: Hondus, I live on the Bluff. The existing Dry Creek sewer--if they had a sewer there and the environment did so well in the last 40 years, why are they so fearful that the environment won't progress after they put in another sewer where the existing sewer was?

Now have they made any provisions to take care of rodents, and mosquitoes, which we know breed in that Dry Creek? And as you go through there you can see that they use that for garbage and trash, and grass and all other things that they dump there.

They should make provisions to take care of such things as that. I think that is very important. That is all I have, thank you.

HEARING OFFICER GOLDMAN: Thank you.

Would anybody else who has not had the opportunity to speak like to make a comment?

MS. PATRICIA NELSON: I would like to speak for myself. I am Patricia Nelson. I am going to back Mr. Johnson right to the hilt, personally. I don't live on Dry Creek. I don't live on Gypsom. But I live in Wichita and I like seeing the trees here. I drive Mt. Vernon. I have spent a lot of time on Gypsom Creek. I have heard a lot of people say our trees are gone.

There is five trees left. Five, out of--I haven't counted, hundreds. Because everyone has told me that Gypsom Creek used to be a garden. And I don't think that anyone who lives in Wichita wants to lose a wooded area as Gypsom Creek wildlife has not fled but there is very little of it left.

I have seen frogs. I have seen fish in streams. I've seen mussels. I have seen one skunk, two species of birds, a couple of baby snakes, and a couple of baby turtles. And I was out there every weekend for three months. I did not find them. But the residents that live there shared and showed them to me.

And I think that the City of Wichita and the Environmental Protection Agency has ignored what is South Pawnee. Do they consider it to be already adversely affected and they can do whatever they please? That is the question that I would like answered.

(Applause, applause.)

HEARING OFFICER GOLDMAN: Does anybody else wish to make a comment?

Please state your name.

MR. C. E. COOPER: I am C. E. Cooper. I live on Mt. Vernon. I have a question to pose I don't suppose anyone will answer it tonight. Is this the forerunner to turning Platte Golf Course into an apartment complex?

HEARING OFFICER GOLDMAN: What is your question?

MR. COOPER: Well, I would like to know if eventually--because it has been proposed before several years ago that someone offered the City a certain amount of money, and certain other pieces of property, in order to build an apartment complex on Platte Golf Course?

Now if this is a forerunner to set it up, a sewage system for the apartment complex of what is now Platte Golf Course, and if that goes, it will be a very bad thing for that section of town.

So, I would just like to raise that question. Although I don't suppose they will want to answer it tonight.

HEARING OFFICER GOLDMAN: But it will be responded to.

WENDY SANBORN: When?

HEARING OFFICER GOLDMAN: We will respond to it at the Regional Office. It will also ultimately be in the Final EIS. You can probably get an answer to a question prior to that though.

Does anybody else have a question?

Yes, sir?

MR. STEVE HUGHES: I am Steve Hughes and I live at 2132 George Washington. I am fairly new to the neighborhood. I have been there about 8 years. I have a fairly small piece of property. I don't know whether I am on the access or not of the interceptor but I discovered when I moved in there that there was quite a bit of material that had been left there by the previous residents.

I began to clean the area up and I had not been there too long when I discovered I had a possum that had moved into the garage back there. I spent a great deal of time down at the Creek area and I discovered that among other natural things, poison ivy in the Creek.

I had the privilege of sitting down there one afternoon, just perfectly quiet, and talking to a young fella who came across the Creek. I don't know what his name was but we watched a nest of squirrels. Three young squirrels were playing down there. I love this kind of thing. I think it is unique to have this kind of thing.

The City has made other proposals and other assessments on what they have done, and they have hit us area residents. The people from the Creek are fighting with the folks who live along the Bluff, who don't want to have their access limited.

We went through this same kind of thing a few years ago, just after I moved in. Whatever they decided, they charged me $1500 for my access there, and they asked me to give up my access to my yard and walk across the street all the time.

None of that kind of argument was in that thing at that time. It wasn't any consideration-- my safety wasn't any consideration. My inconvenience wasn't any consideration, or my $1500.

But now they are throwing all these things at us and asking us to fight back and forth across the creek.

(Applause, applause.)

HEARING OFFICER GOLDMAN: Thank you.

I am going to ask if your question is long, to please come to the podium to speak for the purposes of benefiting the court reporter.

Does anybody else want to ask a question? Raise another issue?

MR. HANK SHENAY: I am Hank Shenay and

58

and I live at 2240 South Trusway. My question, I would like to ask the engineers or somebody, supposing you get this sewer line in and it can't handle the water from the golf course, what will we do? Will we put a sewer through the golf course or not? From Oliver to Mt. Vernon?

Can the engineer answer that? Is there any possibility of it not being able to carry the water like it does now? Because when that creek floods, it gets pretty high.

MR. RON KING: My name is Ron King. The sewer is being designed to handle the flows expected down through the Dry Creek drainage basin.

MR. SHENAY: It is? Well, if it don't, would it flood any basements along Bluff, or Mt. Vernon or any of those places?

MR. KING: Again, I will state that the sewer is designed to alleviate those problems that are occurring within the Dry Creek drainage basin, and down through Mt. Vernon Street. We are aware that there are basements flooding upstream from Mt. Vernon, Bluff Street and along Mt. Vernon Street. And the sewer is to prevent-- excuse me to eliminate those basements from flooding.

MR. SHENAY: One more question. If the sewer is put into the Creek area, would it look like it does from where there is no sewer, from Pawnee into the

Plainview area or would it be covered over?

MR. KING: Oh, O.K., it will be covered over.

MR. SHENAY: It will be so there will be no water run on top of the ground?

MR. KING: Correct, that is the way it is designed.

MR. SHENAY: Thank you.

HEARING OFFICER GOLDMAN: Yes, sir?

MR. HOWARD BOICE: I think these two fellows are not hearing each other. I think this fellow is talking about flooding. And I think this one is talking about sanitary sewers. Now these are not the same. They are closely related but the subject of your environmental hearing tonight is the sanitary sewer, not surface flooding.

MR. SHENAY: Oh, this is just the sanitary sewer.

MR. BOICE: Right.

MR. SHENAY: All right, I thought it was going to take care of all the water.

MR. KING: Well, I apologize for not recognizing what you are saying. The sewer is a sanitary sewer, not a combined sewer. A combined sewer would handle storm water and sanitary sewers do not.

HEARING OFFICER GOLDMAN: Does that clarify the matter?

Yes, sir?

MR. DOUG HORSEMAN: My name is Doug Horseman. I have a question for you. It was brought up earlier by one of the speakers. You mentioned the basements flooding. The questions I have got is what is causing these basements to flood, is it only when there is a heavy rain or is this in a normal day activity that the sewer is backing up? Or what is it? I think this hinges on is it needed.

MR. KING: My name is Ron King. The basement flooding is during wet weather not during normal conditions when it is not raining. It is when there are torrents and water floods the ground. Basement flooding is due to excess of flows during the wet weather period. It is in the sanitary sewer.

MR. HORSEMAN: A followup question on that. If we are talking about a sanitary sewer, then how come we are talking about storm water runoff at the same time?

MR. KING: Well, unfortunately you cannot keep drainage water out of the sanitary sewer and extraneous water would come from runoff through the sewers through the manholes, through the manhole lids. And it also comes from illegal connections, from foundation drains within homes, from gutters servicing your houses. All this water if it is connected to, well, I say illegally--if it is connected to the sanitary sewer, this water would get into the sewer. And, I mean, this is extraneous storm water. And the storm water is surcharging the existing 21" Dry Creek sewer.

HEARING OFFICER GOLDMAN: Yes, sir?

QUESTIONER: One short question, can Mr. King can you name one basement in which there is a backup in this area of the sewer?

59

MR. KING: I can't name you an address, no.

QUESTIONER: Will you include the addresses of those that are having backups, in the Statement, because I don't believe there is one. Nobody in our areaknows about one. I think you have built a straw man, or fighting something does not exist.

HEARING OFFICER GOLDMAN: We will respond to your comment.

Does anybody else have a question?

QUESTIONER: I have a question. How long do we have to get letters into the EIS final statement, is there a cutoff time?

HEARING OFFICER GOLDMAN: I believe it

is August the 14th, correct me, if I am wrong.

If you would like your comment to be entered into the hearing record itself, you have until approximately 15 days from now, the same time, August 14th.

Yes, ma'am?

MS. JODY SCOTT: I am Jody Scott, we live at 3815 East Kinkaid. I would like a complete answer to the No. 4, No Action.

HEARING OFFICER GOLDMAN: Could you be more specific about your question--with regard to your question?

MS. SCOTT: We recommended three years ago that no action be taken and we have had no answer. You are just saying "No Action". You disregarded us and you have not told us why. It has been brought up several times this evening that people don't think we need the drainage system sewer line.

MR. KING: My name is Ron King. As I stated before, and I will read it once again and comment on it. "No Action alternative was dismissed as unfeasible because it would not eliminate the present hydraulic overloading of the Dry Creek sewer and eliminate sewer backups into some basements."

And further to that, the civic plan, and also the infiltration inflow analysis was prepared for this

Dry Creek sewer project and during that engineering report, it was determined that the 21" Dry Creek sewer was hydraulically overloaded and because of this, surcharging was in the 21" Dry Creek sewer. There was some backups into basements above the intersection of Mt. Vernon and Bluff Street, and also some basements flooding along the Mt. Vernon Street.

HEARING OFFICER GOLDMAN: Excuse me but could you repeat your question?

60

QUESTIONER: We would like to have names and addresses of those people who are being flooded.

MR.KING: I believe we can enter them into the Final Impact Statement when prepared. There are some known areas--I am not sure about this but Harry and Berkley Street. Blakely, excuse me. Those are identified areas of basement flooding. Blakely, east of Oliver.

MR. CRISP: Thirteenth Street, Douglas, Kellog, Lincoln, Harry, Mt. Vernon, Pawnee.

QUESTIONER: How far east does it go?

MR. CRISP: Woodlawn, Edgemore, Oliver, Pinecrest, Bluff, Hillside, Roe.

QUESTIONER: Blakely is between Edgewood and Woodlawn, you say, sir?

MR. CRISP: That is as far east as it goes. It would be right in here in this area someplace (indicating). So it would be within the area that is served by the Dry Creek sanitary sewer.

QUESTIONER: Is it the actual sewer that is backing up or is it when we are having our Spring flooding because of all the concrete they built and have not made provisions for? Is that the way it is?

MR. CRISP: No, ma'am. As Mr. King said, it is what is called infiltration inflow. It is water that gets into the sewer but it is not from a home or a commercial dwelling or something like that. It is not sanitary waste. It is the rainwater and so forth that finds its way by getting into the ground, making the ground saturated with water. Then it seeps into the cracks and so forth in the line.

QUESTIONER: Not actually in the Creek basin?

MR. CRISP: No, ma'am. If the sewer line was in the Creek--was actually lie within the Creek, there would be the possibility that some Creek water would directly flow into it, if there is a crack in there some place. This generates from the ground water. The soil becoming saturated with ground water and this water infiltrating into the sewer.

QUESTIONER: That is essentially what you are talking about, putting it down the Creek bank again, why don't you go some place else and you won't have all that water.

MR. CRISP: There is infiltration that is occurring, however, construction in these things have improved remarkably.

QUESTIONER: Where we are, it crosses the Creek. It is completely under the Creek. The only place that water can get in is in the Creek water itself. However, it doesn't seem to me that it is going to serve a whole lot of purpose, building another sewer in there. It is just going to pick up a lot of surface water every-time we have a little high water in the Creek, when it is not designed for that at all.

MR. CRISP: You are saying that excess water will enter into at these points of creek crossings?

QUESTIONER: Right. That is why I say, why don't you go some place else with it and maybe eliminate a little of that?

HEARING OFFICER GOLDMAN: Yes.

QUESTIONER: Yes, you--could you put that Dry Creek area slide back up? Am I to understand correctly then that this area is outlined in black is serviced by the Dry Creek sanitary sewer line?

MR. CRISP: District, yes.

QUESTIONER: The question I have is,

at this stage of development, we are having an extreme amount of trouble with a 24" sewer, correct? Or 21", all right, 13th and Oliver is not developed and those and other tracts will be developed. If we put a 36" sewer in, how do we know that this is going to handle the development that will go on in this section and not be coming back in 20 years, and putting one down Bluff Street? My question is, has it been studied enough to determine that this would satisfy the requirements now and for the next 50 years? Or will we be coming back and tearing out Bluff Street because we cannot convince them to go down Dry Creek again?

MR. CRISP: A 36" sewer has significant capacity--sufficient capacity to serve the ultimate basin population within this area. I might also add that right now the existing Dry Creek 21" sewer has enough capacity under non-rainy periods when the only thing that is running through the sewer is sanitary waste. It has sufficient capacity to carry the ultimate population projection for this basin. So the reason that we need to replace the sewer is because of excessive infiltration and inflow, excessive water is getting into the sewer. It shouldn't all be there and overloading it.

QUESTIONER: How long has it been since the last time the basements flooded and the water got into the sewer line, how long ago was it?

MR. CRISP: I have no idea.

MR. KING: I would like to ask if there are any city officials here who could help us in answering some of these questions?

MS. SANBORN: I have another question. Maybe it has been said and I just did not pick it up, who exactly called for this to be done?

MR. CRISP: The Environmental Impact Statement?

MS. SANBORN: No, that the sewers be redone? Whose idea was it and why?

MR. CRISP: The process by which EPA funds projects is a long history of events in which individual communities request to the State of Kansas, in this case, be placed on a priority list for funding and the State will evaluate the need for the project, and based on certain criteria, will establish them on a priority system. They will establish a certain number of priority points. And if there is sufficient funding to fund, say, if there are 300 projects on the priority list, there may be sufficient funds to fund the first 150. So these 150 projects are eligible grants to make studies, to determine grants--needs, and if needed, to design and to finally construct.

MS. SANBORN: So the City asked for it?

MR. CRISP: The City makes an application, yes, but the priority has to be approved by the State.

Mr. John Metzler, would you like to speak to the priority system, please?

MR. METZLER: I don't know that there is anymore to elaborate on. It is rather an elaborate and detailed system. It is based upon the water pollution impacts.

MR. CRISP: Is that sufficient, ma'am?

MS. SANBORN: That answers my question, although I know of nobody that wants to square this off anywhere. So I wondered who wanted it.

MR. CRISP: Yes, ma'am.

QUESTIONER: I wanted to make sure I understand this now. Actually we don't need a sewer. You are telling me that even if they built further on up, the 21" sewer we have got will accommodate. It is because of surface water from Spring floods, and that is like when the Mall was built on Harry, and it was ground that took excess water. They did not make any provision for all that concrete, and then they poured all that water into Dry Creek. Now to me it looks like if you are going to talk money, there would be some other way to take care of that excess water that comes once or twice a year, rather than tearing up Bluff or Dry Creek, or anything else. (Applause, applause.)

And another point, as long as I am speaking, I want to say I can feel for the people on Bluff Court who are going to be inconvenienced if they go that way, of coming home and parking their car a block away and all that but, you know, we live in a unique area and the people who live on Bluff Court, like the people who live on Clark Court, if you go to sell your house, do you realize what the value of that lot is over some lot with no creek in it, no animals on it, and no trees?

Plus when the City decides to redo a street--I've never been asked in my life if it was all right. They just come and said, "We are redoing the street." If you are inconvenienced, that's too bad. So why all at once is this coming up? They redid George Washington and Mt. Vernon, and they didn't ask my permission. And I was inconvenienced. I have been inconvenienced by the By-pass for four years.

MR. CRISP: Dr. Camine, could you answer that, why we are coming in and asking the people, for instance, and why it doesn't happen some other time?

QUESTIONER: I know why you are asking now, it is because you have three alternates. If you only had one street to go down, you would not ask.

DR. CAMIN: We developed the alternates.

QUESTIONER: But I am saying that if you only had Mt. Vernon, Bluff Street, or Dry Creek, that would be the way you would go.

DR. CAMIN: Originally, there was just Dry Creek. That was the only one proposed. We could have made the decision to simply build it, and inconvenienced you without telling you about it at all. But that wouldn't, you know, we wouldn't O.K. the project and because of the interest of the people in the area and the controversies involved, it seemed an appropriate place that we should stop and evaluate the other impacts.

Because of the controversy we decided to evaluate this particular project from an environmental point of view, to add that more into our decision making process. The one thing that I would say about this project is that I am not pleased that we interrupted it at the very end of the process. And in the future we will be making these determinations to look at the environmental impacts much earlier in the game so they will not be delaying the project for a year.

HEARING OFFICER GOLDMAN: Thank you.

Yes, ma'am.

MS. KATHLEEN BARNES: My name is Kathleen Barnes; and we have lived in the area 25 years and we are affected whichever way you go. We have friends on all sides, and we like the Creek and we like our street. And so it is kind of a hard problem for me to know which way is right. But it has been pointed out to me some where along the line that if this group--I guess it is this group or some group does not decide, the City can go ahead and do it anyway they want to.

We have the use of Federal Funds, they have asked for the use of Federal Funds, is that right?

HEARING OFFICER GOLDMAN: Yes.

MS. BARNES: And if we can't come up with a compromise and find the best way to help the most people, they can just do whatever they want and drop the Federal funds but nobody has mentioned that.

HEARING OFFICER GOLDMAN: That is true.

Any other questions?

Yes, sir?

MR. JOHNSON: I am somewhat concerned here who is going to pay for this project, will it be--will anything be charged to new developments up beyond those creeks. If not, it seems crazy. On the other hand now,coming back to the water seeping into the sewer, maybe for a few thousand dollars you could have a group of engineers to check the sewer to see what it is--points of surface water that is running in through there and you would not need this. If I get a statement, I think that would be fine but it would probably cost a fifth of what this other would cost and disturb less of you people.

And I as a retired engineer will go along to check it to see that they are looking.

(Applause, applause.)

HEARING OFFICER GOLDMAN: Sir, would you like an explanation of the financing of the project?

MR. JOHNSON: Yes.

HEARING OFFICER GOLDMAN: Mr. Vest, could you explain how the EPA budgets are financed?

MR. VEST: I would rather have Mr. King he is better equipped to answer that.

MR. KING: I am sorry, could you repeat the question?

HEARING OFFICER GOLDMAN: Could you explain how these projects are financed?

MR. KING: These projects are financed 75% with Federal Funds. 25% City Funds.

MR. JOHNSON: And none of this is charged to new development?

MR. KING: I believe in Wichita's case, and correct me if I am wrong, is that the 25% charge--well construction costs to the City on this would be handled in a Wichita Sewer Utility Fund, city-wide.

HEARING OFFICER GOLDMAN: Yes, sir?

QUESTIONER: Is it not true that the cost of right-of-way acquisition cannot be paid by EPA but 100% by the City of Wichita?

MR. KING: That is correct.

QUESTIONER: And is it not correct that in your statement the cost of acquisition of right-of-way has not been computed or assessed?

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MR. CRISP: The cost of acquisitions and right-of-ways were included, not as a single line item per se but in the appendix which deals with the cost effective analysis for the EIS, cost of right-of-ways are included in the cost as indicated in the appendices.

MR. CUNNINGHAM: How much did you--

MR. CRISP: For the Force Bluff Street, $86,000.

MR. CUNNINGHAM: When you are not considering the Bluff Street Force Main, what did you put in for the right-of-way acquisition for Dry Creek?

MR. CRISP: Contingencies cost $66,000.

MR. CUNNINGHAM: It appears that someone ought to give some attention to that because it is obvious, I think, that it won't touch the figure which you have to spend to get it, and, therefore, you are suggesting that dollars would be spent less through Dry Creek, than saying--it is not supported by the real world

61 facts. I think that you should reassess that. You have a section in there about the cost of right-of-way acquisition.

Another question I would like to ask you is it's been suggested here that the opposition arose at the end of the project. I would like to suggest that your own record at the EPA Agency shows that long before then, at the end of the project, the citizens themselves were not even advised of the project until very late in it, and there was no public notice whatsoever anywhere, in any public record, that any of the citizens who were directly affected would have had an opportunity to lodge their objections before they did.

62 Another question I would like to ask you, for four years the people have been asking the City Staff where are all these basements that have been flooded. And the same question was asked tonight and again, a resounding silence. And yet that is one of the principal statements in the no go alternative. Yet, you don't have any confirmation of that. And it is difficult also for me to understand how 6 Or 8 hundred feet of stream there could be this infiltration when it is not occurring downstream. We would suggest that it is not correct, that is all backing up in there.

63 I would also like to ask how much

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would it cost to put check valves in 3 or 4 homes you may have identified, rather than build this project as a very economical alternative? It does not appear that there is sufficient factual support in the way the no go alternative has been treated in these proceedings.

I have one last thing to say, it was stated that the reason for this study was because of controversey. It has been shown by the reports you got that there is a significant adverse impact upon the environment if this is allowed to be built. And it has not even been mentioned about the impact on the human invironment, and I don't know how many places this many people concerned about their homes have had to be gathered together in one place. I see at least 200 people here. And that is not a political count. I just know the size of this church would support that. And that shows a significant impact on the human environment, a significant adverse impact if what I heard here tonight about the things that people are worried about has validity.

And I think that should come into your present record. This isn't just a bunch of wild eyed people. They are not wild eyed yet because you haven't done anything. (Laughter.)

One last thing. The gentleman from the State Health and Environment Resources, I would like to ask him in the record for factual studies of any nature at all that have been done by the State Department of Health and Environment, if he would care to make a statement here about this Dry Creek area?

HEARING OFFICER GOLDMAN: Could you respond to that, please?

MR. METZLER: Yes, I will. Our Department is not authorized to make these kinds of studies. What we do is the City via contracting with independent engineers, developes a study. There are documents about this thick developed by the engineers that discuss the problems of the affected area. This is the initial basis for the report.

HEARING OFFICER GOLDMAN: O.K., thank you.

MR. COTTINGHAM: I have another question that I don't think can be answered at this time but I would like to see it in the final document. But it has been brought up by several people here on the No Action alternative. The City has requested funding for the sewer because of the fact that the expense involved they don't want to put up 25%. Now the Government would be putting up 75%, so there would be less cost for it if the funding is not approved, I would like to be shown here this No Action alternative, what kind of priority that the City places on replacing the sewer. It seems like here is a case where the City can obtain funds to go in and put a sewer in, whereas maybe they had not planned on doing it for another 10 or 15 years anyway.

It just seems like here is money for the grab--up for grabs, that can be utilized. I think we should be addressed in the document that if funding is denied, what type of priority the City places on replacement of the sewer, the importance of it and when it will be done.

It was stated that you could put it right down Dry Creek without asking permission. I think that is a point that should be considered.

HEARING OFFICER GOLDMAN: Yes, sir.

MR. MEL KUNOE: My name is Mel Kunoe. It seems that funds or funding is the large issue in deciding which route this thing should take. The question was asked how much would it cost to acquire the easements to go through Dry Creek. You quoted us a $66,000 amount. That is nothing more than contingency--10% contingency for a certain cost. Every city project has it. It has nothing to do with the acquisition of easements.

MR. CRISP: No, that is true.

MR. KUNOE: Acquisition of easements will not only take time, it will take a lot of money. I think if you are really evaluating which route to take because of money, then it should be given a lot more importance because of court litigation. And we have an attorney sitting here who owns property and he can probably answer those questions. This project could be tied up for years in courts to acquire these easements plus the cost, once it is negotiated, paying for those easements. I think you could be talking in several hundred thousand dollars in just acquiring the easements to get to that property.

And if costs are a factor in getting this thing accomplished, then it needs to have more attention to be put to it.

HEARING OFFICER GOLDMAN: Thank you.

Yes, sir.

MR. HOWARD BOICE: I am Howard Boice. I live at 3415 East Gary, which is not on Dry Creek. I would like to call your attention to the statement Mr. Samuel made that we got no warning the sewer was being planned for this area. In 1976, as many of you will remember, surveyors went through the area south of Mt. Vernon and around the Creek bed and there was confusing answers given by these surveyors to the residents as to

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what this was all about.

At that time the Dry Creek Association went before the City Commission and asked that if it was necessary to replace this 21" sewer through the Dry Creek area that it would be combined with a water management which we used to call flood control, and that the area be torn up one time and not twice, if this had to be done in the second area.

I have made several computations on the capacities of the sewers, simply as a comparison area, not as a friction of the flow or as to the slowdown by the passage through the manholes. I don't think it is necessary to discuss those except to say that the--if the sewer would be taken down Bluff Street, and if a 10" liner was to be put through the present sewer, and if Mt. Vernon's 24" sewer was to be used, it would result in having an area 85% larger carrying the sewer, that is the liner, Bluff Creek and Mt. Vernon, would be 85% larger than the areas of the sewer feeding into the Bluff Creek sewer.

So I think this is the reason that some people have asked some questions. But I did want to make this straight that the people in the Dry Creek area knew a long time ago the sewer replacement was being considered.

HEARING OFFICER GOLDMAN: Thank you.

Are there other questions?

Yes, sir?

REV. BLACK: I would like to have a statement, an impact statement, in the next study assessing what the impact on that creek bed, and those trees, and that property, and those homes. The assumption at this meeting is (a) that it is beautiful area. That is true. (b)It is a totally natural area. Well, it has got a lot of handmade stuff in it to be natural but it is mostly natural. Certainly worth preserving. But to see that it will stay that way, I'm curious, as to whether that stream bed is in fact eroding right now at a dangerous rate because of surface water. And this idea that if we just don't do anything, what kind of--take this rear guard action, and keep everybody out of there, that is going to last forever.

My hunch is maybe I am wrong, let's see it studied what is happening right now in the present circumstance to the dirt and the banks, and the trees in that area. Is it holding its own or is it deteriorating. And if it is deteriorating, what actions should be taken? Because if it is clearly deteriorating as it stands and we do nothing, it just gets worse. And if the community wants it with no creek bed, and no sewer, well, we have made a great big mistake.

HEARING OFFICER GOLDMAN: Thank you.

Would anybody like to respond?

QUESTIONER: Yes, well, you are right. It is eroding, and it is eroding from the same cause that is flooding those people's basements, surface water. Because the city when they built the Mall on Harry Street, they took Kiddie Land out, all that ground that used to take care of that surface water. And they were supposed to, originally, put a lake in there. But they didn't and now they are building and building and building, and all of the water comes down to Dry Creek. If it is eroding, you are right, and it is, something will have to be done about it because it is not our fault it is eroding, it is poor planning. But I will guarantee you that'sthe reason people are having flooding in their basements.

They don't need another sewer, they need something done to take care of surface water.

REV. BLACK: Can I just make one more statement?

HEARING OFFICER GOLDMAN: Yes.

REV. BLACK: What seems to me to be reasonable or the problem in this thing that should be addressed, every time we have one of these meetings they need to do something. The sewer gets better. And the answer from the city officials was muffed, we never know why. The sewer has to be replaced. But everybody knows that the surfact water management is severe. And I don't think we are really addressing the real question here. What are we going to do about it? What is happening to the creek bed that will help alleviate that surface water problem.

QUESTIONER: The Government won't pay for surface water.

REV. BLACK: Well, it seems to me that is the very approach to take first, it has to be whipped. Let's make sure that we end up with a creek that can handle the water without erosion.

HEARING OFFICER GOLDMAN: Thank you.

Yes?

QUESTIONER: I would like to respond to his comment on erosion. I am not an expert but anytime water and soil pass through erosion, and a body of water, and the speed of that water going through, water will cause an erosion. The lady over here has pointed out concrete moors and that is one very strong factor for runoff.

REV. BLACK: You see--how wide was that creek 15 years ago, how wide is it now?

QUESTIONER: You can check me out,

there are maps you can check. You could say that they are geological maps. They are aerial photograph maps. And they go way back.

Lee Stripe, can you tell him? Give him an idea of where the maps are and what they show?

MR. LEE STRIPE: Well, I think the answer to that is that erosion is the natural course that is constantly in effect within the creek. It will take turns. It will go over banks. It can take both banks. That is the natural course of events or the order of things in nature.

The problem we are facing is that there is not enough ground to absorb the water during a flood. I live on Gypsom. It is cut down 12 inches in the last 11 years. It did not do that for thousands of years.

HEARING OFFICER GOLDMAN: Thank you.

Are there further questions?

QUESTIONER: I think it was stated that a sewer would further the erosion in the creek, I think it was made by the Resource Committee.

HEARING OFFICER GOLDMAN: Yes, sir?

QUESTIONER: I am the one who made the statement. Citizens did not know about this project and they did not try to defend themselves. Just at the last. And the fact that we may have been suspecting things, in fact, we were trying to find out things. The fact remains they had this thing set in concrete, already laid out, and they never even considered alternatives

I don't like to disagree with Mr. Boice but since he suggested that we did know, and I went to the public hearings that we had. We were told here tonight that these things had been planned for some period of time. I don't think that, people finding things out and having no voice,thank God the Environmental Protection Agency to have the hearing so that people could bring to bear these facts. They would have never had known if the Environmental Protection Agency had not decided to go to public hearings. And we would never have had this established. We do have a very valuable environmental resource here.

As I understand it the reason for having this Agency, and having this access by citizens is so that city staffs just cannot draw lines on maps and decide things without regarding permanent long range effects on people.

And there have been several suggestions about this project being delayed, there haven't been any suggestions about any harm coming to anybody's access and sewer use as a result of it. There was a statement made here this evening that Bluff Street would be closed. Yet the man who did the work in drawing up the impact statement stated--and I am sure he is still here, that a gentleman from the W. B. Carter Construction Company, and he told them Bluff Street would not have to be closed. That is an engineer who says something different than the gentleman who runs the City Sewer Facilities, who says street access will be temporarily closed. He need not fear from that.

Well, I shouldn't say any more because people will get him outside but I hope you won't go back and think well, we gave him the chance to speak, and now let's go on and build the sewer because you have not harmed anybody by not building it. And there has been sufficient questions raised. I hope you have been given sufficient facts to sustain the idea of doing it. And further, it has been shown that it is a valuable resource environmental resource, maybe some attention from the Agency might be given to not giving the citizens an alternative but simply trying to keep it from being further damaged. And I don't think that is the specific thing but it is within the term of long term effects of building the sewer through there.

HEARING OFFICER GOLDMAN: Thank you.

Yes, sir?

QUESTIONER: Would I be out of line to move that we adjourn? I think we have said everything we need to say. Everything that is going to be said. Can we adjourn?

HEARING OFFICER GOLDMAN: That is fine. I just wanted to make sure that everybody got the opportunity--

One more question?

MR. KENNETH GERMAN: My name is Kenneth German. I live down at the end of the block here. And during all this rhetoric tonight I've heard the question asked several times but I have never really heard it answered. Do we need the sewer? One of the city officials said the one we have is adequate except for certain periods of time, during heavy rains. That there are a few basements that backup and we can't nail down where these basements are at.

64

I live right down where it comes off of Mt. Vernon and I don't have any flooding. And my question is, do we need the sewer, or are we spending three-quarters of a million dollars for 4 or 5 basements that are flooding.

HEARING OFFICER GOLDMAN: Thank you.

I want to thank all of you for coming tonight. So--

There is one more question.

QUESTIONER: This is a statement I would like in the record. Everyone is talking about bringing the line down the Bluff. Are you aware that there are at least 4 or 5 ways that you can use Dry Creek and you won't have to pay easements for that.

I know it is late but could I have an answer to that question?

HEARING OFFICER GOLDMAN: Can anyone respond to that question?

Would you repeat the question?

QUESTIONER: I believe the question was that nobody had actually stated that we needed--

65

Define easements in the Dry Creek area--they would have to buy easements in the Dry Creek area because you don't have easements in the Dry Creek area. We want to know, do we need the sewer? One gentleman said that the sewer was adequate except for short periods of time when the rain flooded the basements, 3 or 4 basements, and we were going to spend 3/4 million dollars for these few basements. Do we need the sewer?

MR. CRISP: We will be reevaluating the Impact Statement and we will be defining where the water is backing up in basements, and things of this nature.

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QUESTIONER: Well, I still didn't hear an answer.

HEARING OFFICER GOLDMAN: The answer is we will--the No Alternative will be--the No Action Alternative will be reevaluated, and you will have a more explicit answer to your question in the Final EIS.

Also, feel free to call EPA at any time with the toll free number. And then you can discuss that question.

Yes, sir?

QUESTIONER: Just one thing in connection with that sewer. I can't answer that question. I can answer this. The area carrying the sewage is going to be Bluff Creek, plus a liner in Dry Creek, plus Mt. Vernon, the total capacity. I will answer it for you if you use all that. Then when you get to the other end out here at George Washington, you will have capacity. You are way over what can be carried on down. So you are building a huge sewer in order to go down Bluff, or if it is taking over the telephone poles, or high stakes, the size of it, whether it is excess to the water that comes downstream. The water that can be handled right now, as I mentioned is 4.4% short of the water that will be coming across the golf course, the 10" line of the Bluff, the 8" line from the area to the east of here, from Belaire and

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so on.

HEARING OFFICER GOLDMAN: Thank you. The last question.

QUESTIONER: Can we have that toll free number? I could not see it on the sheet of paper.

HEARING OFFICER GOLDMAN: Yes, I'm sorry. The toll free number is 800-821-3714. Did everybody get that?

I want to thank you all for coming. I assure you that your questions are going to be responded to in the Final EIS. And please feel free to contact EPA at any time.

This meeting is adjourned.

(Whereupon, at 10:05 p.m., the hearing in the above-entitled matter was closed.)

CERTIFICATE

I, DAVID L. ARGIE, do certify that I appeared at the time and place first hereinbefore set forth; that I took down in stenomask the entire proceedings had at said time and place; and that the foregoing pages 1 through 111 constitute a true, correct and complete transcript of my said stenomask notes.

David L. Argie

Response to City of Wichita Citizens Participation Organization

1. The Environmental Protection Agency (EPA) has reviewed the information used to determine the need for replacement of the existing Dry Creek Sewer. EPA's evaluation was based on dry weather and wet weather flow monitoring results, calculation of inflow rates presented in the Dry Creek Facility Plan, location of sewer backups, and independent calculation by EPA on the expected flow from a 10-year, 24-hour rainstorm. This material is contained in Appendix III.

This review and evaluation indicated that the present sewer capacity of 6.6 Million Gallons per Day (MGD) or .275 Million Gallons per Hour (MGH) is exceeded by a 10-year, 24-hour or greater storm. The no-action alternative would result in the continued hydraulic overloading of the sewers within the Dry Creek Basin. For this reason, EPA has determined that the no-action alternative is unacceptable and that an alternative must be selected which will relieve the present overloading.

Responses to Wichita Water and Water Pollution Control Department

2. Canter (1977) indicated a noise level of approximately 70 dBA measured at 50 feet, from pump station operations. This value could be reduced to ambient levels by enclosure of the pumps or construction of a noise barrier.

Emergency power may be provided by either a separate and independent power source from two separate substations or an emergency generator. If it is necessary to provide an emergency generator, EPA agrees that it would cause elevated local noise levels. However, this impact is considered insignificant, because of the infrequency and limited duration of the power outages.

3. EPA agrees that wastewater pumping is an intermittent operation. However, we do not agree that this pumping would result in surcharging in downstream sewers. Based on the slope of the existing 21-inch sewer below George Washington Boulevard and the slope of the proposed 24-inch sewer from George Washington Boulevard to the War Industry Sewer, these sewers have a combined capacity greater than the pumping capacity of the proposed pump station. Therefore, surcharging should not occur.

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4. Presently flows which originate in the Dry Creek Basin discharge into sanitary sewers 12 and 24. Therefore, the Mt. Vernon Alternatives would merely perpetuate the city's present flow routing system.

5. Within the Bluff or Kincaid Roadway portion of the Bluff alternative, trench depth will reach 17 to 21 feet. This depth will require that trenching techniques and equipment be employed which will limit the width of the excavation to ensure that continual access can be provided for a portion of the roadway. An additional consideration which mitigates traffic disruption and vehicle access is that construction rates of approximately 30 feet a day would mean only a relatively short stretch of roadway would be affected at any one time.

The presence of utilities is common in any construction within developed areas. While these do require caution on the part of a contractor, they do not create unusual hazards or complications to construction work.

6. Continued use of the existing 21-inch Dry Creek Interceptor by placement of a slipliner does present many of the problems noted; however, these problems are not severe enough to eliminate alternatives requiring a slipliner from consideration.

Records of sewer maintenance performed by the City of Wichita in the Dry Creek Basin since 1977 do not indicate that pipe undercutting or washing out, lateral deterioration or manhole damage has occurred. However, EPA recognizes that streambank erosion does present a potential danger to the integrity of the sliplined existing 21-inch sewer. As such, a cost of $14,250 for erosion protection at four creek crossings has been added to all alternatives requiring the use of a slipliner. The fifth creek crossing does not require erosion protection since it is presently protected by a cemented rock retaining wall.

Some disturbance will be necessary for slipline installation, lateral reconstruction and service reconnection. However, this disturbance is minimal because only small and dispersed areas would be impacted and light construction equipment and/or hand excavation techniques can be employed.

7. In the process of estimating costs for the alternatives considered, EPA consulted the following data sources.

1. Estimates contained in the Dry Creek Facility Plan.
2. Estimates prepared for EPA by a local engineering firm.

3. Estimates by a local utility contractor.
4. Construction costs for similar EPA projects within Region VII. Based on these sources, EPA continues to support the costs presented in the Draft EIS, subject to revisions where appropriate and the changes indicated in the following discussion.

Pipe in Place Costs

In estimating pipe costs, consideration was given to factors such as depth of trenching, method of trenching, volume of overburden to be removed and stored, access to site, site restriction and mitigative measures to be employed.

Based on these considerations, EPA believes that the cost consideration of deep excavation and the unit piping unit price for the roadway alternative equals the cost consideration for restricted access and mitigation for the Dry Creek alternative. EPA continues to support the unit cost listed in the Draft EIS.

Pavement Removal

EPA estimation of pavement removal is based on the assumption that excavation for pipe placement is limited to a maximum width of ten feet. Because excavation may result in some damage to pavement beyond the limits of excavation, pavement removal and replacement has been increased to represent a 13-foot repaving width. The cost estimates have been revised to reflect this change.

Service Line Reconnection

The cost of service line reconnections is considered part of the cost for slipliner placement.

Creek Crossing Improvements

As noted in Response 6, EPA agrees that creek crossing protection should be included at four crossings for alternatives requiring placement of a slipliner. Cost for these alternatives has been increased by $14,250 to represent an addition of 150 cubic yards of gabions and 60 square feet of riprap.

Cost estimates and the cost-effective analysis have been revised to reflect these changes.

Responses to Professional Engineering Consultants

8. The firm of Professional Engineering Consultants, P.A. has been removed from the list of Principal Preparers. The firm will be listed as having supplied information, under contract, to EPA.

9. See Response 7.

Responses to U.S. Department of Housing and Urban Development

10. The purpose of this project is to replace an existing sanitary sewer which is hydrologically overloaded due to excessive infiltration and inflow, and not to provide additional capacity of growth. As such, air quality will not be impacted.

11. Noise levels presented in Figure 13 represented values obtained from field monitoring for this EIS. Noise associated with flights into or out of McConnell Air Force Base are reflected in the reported values.

12. The capacity of pipes is dependent on factors other than the cross-sectional area of the pipe. These factors include the slope of the pipe, and the "roughness" or resistance to flow of the pipe. In order to transport all flows which would enter the Dry Creek sewer with the available slope, a 36-inch pipe is required.

13. See Response 8.

14. Comments noted.

15. The rankings presented in the Draft EIS were intended to provide a broad-based comparison of alternatives. Since it is impossible to provide a definite quantification for impacts, except cost, EPA chose to limit quantification to the broad limits of minor impact (value of 1), moderate impact (value of 2) and major impact (value of 3). Any attempt to provide a more definitive numerical value would be unrealistic and introduce too much subjectivity and personal bias. EPA believes its ranking provides a balanced and fair evaluation of the impacts based on the information available. As such EPA has retained its original ranking.

Responses to Donald. A. Distler

16. Corrections have been made as noted.

17. The tree count presented in the Draft EIS for the Bluff Gravity and Forcemain alternative was based on extrapolation of the tree density obtained from a random sample and not from an actual count. The Final EIS has been revised to reflect the information you have provided.

18. Within the area for the Dry Creek alternative three different easements exist. These are permanent sewer easement, temporary sewer easement and permanent drainage easement. The total area of these easements is 2.7 acres which contains 276 trees. The construction corridor for the Dry Creek alternative is limited to permanent and temporary sewer easements. These two easements consist of approximately 1.92 total acres of which 1.35 acres are riparian woodlands containing 133 trees.

Responses to U.S. Department of Interior

19. A more thorough discussion of archeological impacts is contained in Response 23.

20. Regulations to implement Section 13 of the Clean Water Act of 1977 are contained in 40CFR 35.917-i(j). These regulations state that Section 13 applies only to Facilities Planning begun after September 30, 1978. Since the Facility Plan for the Dry Creek Interceptor was begun in 1977 Section 13 does not apply.

21. EPA doubts that the existing Dry Creek sewer is impacting the quality of groundwater.

Although the existing sewer is deteriorated and cracked, these cracks are stress cracks along the crown of the pipe. Cracks of this nature generally only weaken the structural integrity of the pipe rather than permit infiltration/exfiltration. While the sewers within the Dry Creek Basin are subject to excessive flow, the flow monitoring results contained in Appendix III indicate that inflow dominates the infiltration/inflow flows. For these reasons, groundwater contamination is not considered serious.

22. On August 17, 1979,EPA formally requested from the Regional Director of the Fish and Wildlife Service a determination as to whether this project would have an adverse impact on any Federally listed threatened or endangered species. On August 27, 1979,EPA was informed that no proposed or listed threatened or endangered species are known to exist in the project area.

Responses to Kansas State Historical Society

23. EPA's consideration of cultural resources in the Draft EIS was based on the work of Boydston (1978 A&B). This work covered both the area from the intersection of Mt. Vernon and Bluff to George Washington Boulevard (Part A) and the alternate from Pawnee Avenue to Whitney Lane (Part B). In his report, Boydston identified four sites in the vicinity of the Part B Section. Sites 14SG508 and 14SG514 are located approximately 1600 meters upstream

of the proposed Part B creek crossing and sites 14SG515 and 14SG518 are located approximately 500 meters downstream of the proposed crossing.

At the time the Draft EIS was being prepared, EPA was not aware of the presence of a significant archeological site (14SG527) in the vicinity of the Part B crossing of Gypsum Creek. If any portion of this site is located within the area required for the proposed creek crossing in the Dry Creek or Bluff Street Alternative it would result in an adverse impact on cultural resources.

In order to minimize adverse impacts on cultural resources, EPA will require the following mitigation measures:

1. Consultation between the grantee and the city archeologist as to the exact location of proposed sewer lines in both Parts A and B.
2. Relocated and redesigned lines, if technically possible, to avoid any archeological sites identified by the city archeologist.
3. If significant sites cannot be avoided by redesign or relocation, limit construction easement to the narrowest dimensions possible and undertake an archeological salvage within the construction easement.

Responses to Archeological Association of South-Central Kansas

24. See Response 23.

25. See Response 23.

Responses to Comments by Arthur L. Youngman, Bobbie Keltner, Mary Alice Horcih, and Joan Kamus

26. See Response 18.

27. If the existing 21-inch line is not sliplined to reduce its diameter, the limited amounts of flow would not be sufficient to prevent the deposition of solids and eventual blockage of the line. See also Responses 6 and 17.

Responses to Comments by Wichita Environmental Resource Advisory Board

28. See Response 18.

29. See Response 17.

30. EPA agrees that rankings other than those present in the Draft EIS can be developed and justified. However, since the ranking is only intended to serve as an alternative screening device EPA will retain its ranking procedures and values. See also Response 15.

Response to Comment by Alma A. Bain

31. See Response 5.

Responses to Comments by Kathleen and Jordan Barham

32. The Dry Creek and Bluff Street requires that a construction corridor be established through the Dry Creek area as shown in Figures 17 and 20. These corridors are necessary for construction. Upon completions of construction the corridors will be regraded and replanted. This project does not involve rechannelization of the area for flood control purposes.

33. The Dry Creek Alternative would require the removal of 133 trees or approximately 6 percent. The site restoration plan submitted by the city calls for replanting of 69 trees.

The Bluff Street Alternative would require the 50 trees or approximately 2.3 percent of the trees in the area be removed. As no site restoration plan has been developed the exact number to be replanted is not known. Based on the estimated cost for site restoration at least half or 25 trees would be replanted.

34. EPA will ensure that the necessary protective or mitigative measures are carried out by making this a condition for receiving Federal funding. EPA will monitor construction activities to ensure these conditions are adhered to. Should the city fail to carry out these measures,the city would be subject to legal action by EPA.

Responses to Comments by Don E. Cottingham

35. The cost of acquiring necessary easements cannot be estimated with any degree of accuracy. Some residents may donate easements while the city may require condemnation to secure other easements. For this reason easement costs have not been included as a capitol cost line item.

EPA agrees that all costs have risen due to inflation. However, since all alternatives have inflated at the same rate, the relative differences in costs have not changed.

36. EPA agrees that the existing 21-inch Dry Creek Sewer is in surprisingly good condition for its age. However, this sewer does contain cracks along approximately 33 percent of its length that seriously weaken the line's structural integrity.

The placement of a 10-inch slipliner is necessary to provide sanitary sewer service to areas presently served by lateral sewers and house connection which currently flow directly into the existing Dry Creek Interceptor. As noted in Response 6, placement of the slipliner will have minimal impact.

Responses to Comments by Kansas Department of Administration

37. EPA will require, as a condition for Federal funding, that the city comply with the provisions of K.S.A. 82a-301 to 305a.

38. See Response 23.

Responses to Comment by Barbara Keltner

39. The removal of vegetation required for the alternatives under consideration will not result in a significant change in local temperature conditions. While trees do provide an important wind break to protect against winter winds these alternatives will not result in destruction of the sheltering characteristics provided by the Dry Creek area.

While trees do serve as humidity "pumps" the loss of 2.3 to 5 percent of the area's total tree population will not significantly reduce local humidity values. Additionally establishment of a grass ground cover and tree replanting will replace the source of humidity.

Responses to Comments by the Kansas Department of Health and Environment

40. A map delineating property line and owners in the affected areas is contained in Appendix IV.

41. See Responses 5, 15 and 30.

42. EPA agrees that there has been no observable long-term negative impacts.

43. Costs of developing the Dry Creek EIS were totally borne by EPA. EPA estimates this cost to be approximately $20,000. Based on EPA's Construction Cost Index, costs have inflated by approximately 18 percent since EPA began preparing this EIS.

44. Chapter IV, Environmental Impacts of Alternatives, contains mitigative measures for each impact. Mitigation measures for this Dry Creek corridor impacts are presented on page 46, for decreased aesthetic value, and page 48, for disruption of a natural area and its associated wildlife.

45. EPA chose not to identify a preferred alternative in the Draft EIS. This discussion was consistent with The Council on Environmental Quality Guidelines for Preparation of Environmental Impact Statements,(40 CFR Part 1500 1 August 1973) and EPA final regulations for Preparation of Environmental Impact Statements, (40 CFR Part 6 14 April 1975).

Since the purpose of a Draft EIS and public hearing is to obtain public input in the decisionmaking process, no substantial benefit would be obtained from a public hearing on the selected alternative.

Responses to Comments by Donald Cottingham

46. See Response 35.

47. See Response 36.

Response to Comment by Jerry Greiter, Metropolitan Area Planning Commission

48. See Response 7.

Responses to Comments by Keith Sanborn

49. See Response 17.

50. The EPA has identified in "Information on Levels of Environmental Noise Required to Protect Public Health and Welfare with an Adequate Margin of Safety" (EPA 550/9-74-004) a lifetime (40 years) continuous exposure of 70dB as resulting in hearing loss. While the noise levels which can be expected from construction activities are above this level and will create a noise disturbance, the intermittent nature and limited duration of the noise incidents will not cause hearing loss.

Response to Comments by Patricia E. Nelson, Archeological Association of South-Central Kansas

51. See Responses 23, 24 and 25.

Responses to Comments by Art Youngman

52. See Responses 18 and 26.

53. See Responses 6,17 and 27.

Response to Comment by Victor W. Pickering

54. See Response 6.

Response to Comment by John D. Wynkoop, Wichita Water and Water Pollution Control

55. See Responses 2, 3, 4, 5, 6, 7 and 30.

Response to Comment by F.E. Johnson

56. See Responses 1 and Appendix III.

Response to Comment by Mr. Cooper

57. The purpose of this project is to replace a portion of the Dry Creek Interceptor which is hydraulically overloaded due to infiltration and inflow. See Response 1 and Appendix III.

Response to Comment by Hank Shenay

58. See Responses 1, 57 and Appendix III.

Responses to Comments by Unknown Questioner

59. See Appendix III.

60. See Appendix III.

61. See Response 35.

62. See Appendix III.

63. Placement of check valves or stand pipe could eliminate some backups into basements; however, this action would not eliminate the

hydraulic overloading of the Dry Creek Interceptor.

Response to Comment by Kenneth German

64. See Response 1 and Appendix III.

Response to Comment by Unknown Questioner

65. See Response 1, Appendix III and Appendix IV.

**United States
Department of
Agriculture**

Soil
Conservation
Service

Box 600
Salina, Kansas
67401

RECEIVED
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REGION VII
EPA

July 18, 1979

Dr. Kathleen Q. Camin
Regional Administrator
Environmental Protection Agency
Region VII
324 East 11th Street
Kansas City, Missouri 64106

Dear ~~Dr. Camin~~: Kay

The Draft Environmental Impact Statement for the proposed Wichita-Dry Creek Interceptor Sewer addressed to the Soil Conservation Service has been reviewed.

Since this project is urban having no significant adverse impact to prime agricultural lands or conservation practices, we have no comment.

We appreciate the opportunity to review and comment on these proposed projects.

Sincerely,

John

John W. Tippie
State Conservationist

cc:
Dr. Fowden G. Maxwell, Coordinator of Environmental Activities, Office of the Secretary, USDA, Washington, D.C.
Director, Office of Federal Activities, Washington, D.C.
R. M. Davis, Washington, D.C.

STATE AGENCY A-95 TRANSMITTAL FORM

Return to:
Division of State Planning & Research, Department of Administration, Suite 407
Mills Building, Topeka, Kansas 66612

PROJECT TITLE: EPA, Region VII - Dry Creek Interceptor, Wichita, KS, EIS

☐ Notification of Intent
☐ Preapplication
☐ Final Application

DATE REVIEW PROCESS STARTED	DATE REVIEW PROCESS ENDED	SAI NUMBER
7-2-79	7-23-79	7339 - EIS

PART I Initial Project Notification Review (To be completed by Clearinghouse):

The attached project has been submitted to the State Clearinghouse under the provisions of the Federal OMB Circular A-95 revised. This form provides notification and opportunity for review of this project to the agencies checked below. Please fill in Part II and Part III below and return to the State Clearinghouse.

☒ Return by 7-23
☐ Expedite
☐ Add. Info. Avail.

REVIEW AGENCIES

☐ Aging
☒ Agriculture - DWR
☐ Civil Rights Commission
☐ Economic Development
☐ Education
☒ Fish and Game Commission
☒ Health and Environment
☒ Historical Society
☐ Human Resources
☒ Kansas Corporation Commission
☒ Park and Resources Authority
☐ Social and Rehabilitation Services
☒ State Conservation Commission
☐ Transportation
☐ Water Resources Board
☒ Kansas Energy Office
☒ ~~Kansas Geological Survey~~

PART II Nature of Agency review comments (To be completed by review agency and returned to CH

Check one or more appropriate boxes. Indicate comments below. Attach additional sheet if necessary or use reverse side.

☐ Request clarification or additional info. ☐ Suggestions for improving project propo

COMMENTS: I reviewed only the geological aspects of this EIS and find no associated problems with the geology

PART III Recommended State Clearinghouse Action (To be completed by review agency and returned to Clearinghouse):

Check one box only:

☑ Clearance of the project should be granted

☐ Clearance of the project should be delayed until the issues or questions have been clarified by the Applicant

☐ Clearance of the project should not b delayed but the Applicant should (in the final application) address or cla if the questions or concerns indicated a ov

☐ Request the opportunity to review the final application prior to submission to the federal funding agency

Reviewer's Name	Div./Agency	Date
Frank W. Wilson	Kan. Geological Survey	July 11, 1979

STATE AGENCY A-95 TRANSMITTAL FORM

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Division of State Planning & Research, Department of Administration, Suite 407
Mills Building, Topeka, Kansas 66612

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☐ Transportation
☐ Water Resources Board
☒ Kansas Energy Office
☒ Kansas Geological Survey

JUL 3 RECD

PART II Nature of Agency review comments (To be completed by review agency and returned to CH)

heck one or more appropriate boxes. Indicate comments below. Attach additional sheet if necessary or use reverse side.

☐ Request clarification or additional info. ☐ Suggestions for improving project proposa

COMMENTS:
This proposal should have no significant impact on wildlife resources within the project area. Programs and activities of the Fish & Game Commission will not be involved.

PART III Recommended State Clearinghouse Action (To be completed by review agency and returned to Clearinghouse):

Check one box only:

☑ Clearance of the project should be granted

☐ Clearance of the project should be delayed until the issues or questions have been clarified by the Applicant

☐ Clearance of the project should not be delayed but the Applicant should (in the final application) address or clarify the questions or concerns indicated above

☐ Request the opportunity to review the final application prior to submission to the federal funding agency

Robert D. Wood	Div./Agency Kansas Fish & Game Comm.	Date July 3, 1979

I am Betty Rowley.

My husband, Patric, and I built our house here on Kinkaid just about 25 years ago this month. We live three houses from the end of the block which dead-ends into Dry Creek.

We have raised five children here. One of the reasons we have stayed here so long, adding onto our house instead of moving into a bigger one, is because we really like the neighborhood!

Our first two children spent a lot of time playing "at the Creek" -- building playhouses, playing hide and seek, following nature trails, and making some trails of their own. It was a fun place, with about the biggest problem being the mosquitoes. About the only time they could not play there was when it was raining. As the name implys, this creek is dry most of the time. But when it raiss it fills up very fast and the water moves swiftly.

The other children were not able to enjoy the creek like the first two did. When they were old enough to go play at the creek, it had become overgrown and tangled with weeds and bushes and fallen trees, with lots of poison ivy and oak. It is strewn with debris -- broken glass, cans, styrofoam, and other forms of junk are deposited in the creek bed. I feel it is also unsafe because of the fact that robbers and other criminal types could hide there. I think that a good clean up of the creek would be beneficial to the neighborhood.

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I, of course, would not want a hundred feet wide cement canal pushed through this area, but if, through the help of the Environmental Protection Agency, we could have a creek that looks like it does on the other side of George Washington Boulevard where the gabiens are used, and if there were requirements for replanting of the creek sides, I would be very much in favor of the sewer being routed through the creek.

Thank you very much.

Betty Rowley

Mrs. Betty Rowley
3908 E. Kinkaid
Wichita, Kansas 67218
682-8661
Member of Dry Creek Association

The above was written prior to the meeting held in Wichita, Aug. 1 in case I should want to speak.

Now, following the meeting, what I really want to know: Is this sewer really necessary? Surface water seems to be much more of a problem. Has anyone thought of making a lake or an underground holding basin under Meadowlark Golf Course (Clapp Park)?

RECEIVED
AUG 6 1979
RGAD
REGION VII
EPA

2245 South Fountain
Wichita, KS 67218
August 2, 1979

Ms Kay Camin, Regional Director
Environmental Protection Agency
324 East 11th Street
Kansas City MO 64106

Dear Ms Camin

I am writing concerning the proposed sewer line in southeast Wichita. Our home is located one block east of Bluff and a half block south of Kincaid. We in our block will share the temporary inconvenience of this project plus the loss of Dry Creek if your decision goes the wrong way with those citizens on Bluff and in Bluff Court, therefore, I feel our opinions should have been solicited.

It is unbelievable to me that anyone could be so niggardly in spirit that they wouldn't be willing to suffer a little temporary inconvenience to maintain a pretty little place like Dry Creek. Aesthetically, it's the lone contribution in this part of town. The "limited access" to these peoples' homes is a temporary situation. Cutting trees and other vegetation and driving the animals out is a permanent situation.

We have no selfish interest in either Bluff or Dry Creek. We use Bluff quite a lot, but we can always go another way. We don't go walk along Dry Creek and personally view the wild life there, but we do enjoy seeing it. We have lived in this neighborhood since 1953. During these years we have seen many, many trees taken out to widen George Washington Boulevard and on further out to build apartment houses, so that now there really isn't much going for this part of town anymore. Must we destroy everything in the name of progress? Can't anyone be farsighted enough to do everything in his/her power to preserve even one living thing?

I don't know who determined this sewer line is necessary, or why it is necessary, because there again no one asked me. If it is necessary, though, and if my tax dollars are going to help pay for it, please, please do everything you can to save Dry Creek.

Sincerely

(Mrs.) Ruth Ann Rutter

3930 East Kinkaid
Wichita, KS 67218
August 10, 1979

Mr. Edward C. Vest, EIS Coordinator
Environmental Protection Agency, Region 7
324 East 11th Street
Kansas City, MO 64106

Dear Mr. Vest:

I am writing to express my objection to the Dry Creek sewer going down Kinkaid.

Of the four principal wastewater transport alternatives, I am in favor of Number One, DRY CREEK, as it would inconvenience fewer people than any of the other alternatives.

Sincerely yours

Pauline Lane (Mrs.)
3930 East Kinkaid
Wichita, KS 67218

3930 East Kinkaid
Wichita, KS 67218
August 11, 1979

Mr. Edward C. Vest, EIS Coordinator
Environmental Protection Agency, Region 7
324 East 11th Street
Kansas City, MO 64106

Dear Mr. Vest:

I am writing to express my objection to a Dry Creek sewer being built south of Mt. Vernon along Bluff to Kinkaid and then west to George Washington Blvd. I feel that the most feasible route would be along the existing Dry Creek. As for disruption of wildlife along Dry Creek, all I have seen have been a few possums, squirrels, and rabbits and is a breeding ground for crows and mosquitoes.

In the 12 years I have lived on Kinkaid, no more than a block from the creek, I have failed to realize any benefits from the above wildlife, and consider them more as a nuisance.

I feel that any disruption of my life-style, not being able to drive to my own home for a period of three months, far outweight the concerns about the disruption of wildlife along Dry Creek.

Sincerely yours,

Douglas Lane
Douglas Lane
3930 East Kinkaid
Wichita, KS 67218

3930 East Kinkaid
Wichita, KS 67218
August 9, 1979

Mr. Edward C. Vest, EIS Coordinator
Environmental Protection Agency, Region 7
324 East 11th Street
Kansas City, MO 64106

Dear Mr. Vest:

I am writing to voice my objection to the Dry Creek sewer going down Kinkaid.

Of the four principal wastewater transport alternatives, I am in favor of Number One, DRY CREEK, as it would inconvenience fewer people than any of the other alternatives.

Sincerely yours,

Mike Lane

Mike Lane
3930 East Kinkaid
Wichita, KS 67218

3930 East Kinkaid
Wichita, KS 67218
August 8, 1979

Mr. Edward C. Vest, EIS Coordinator
Environmental Protection Agency, Region 7
324 East 11th Street
Kansas City, MO 64106

Dear Mr. Vest:

I am writing to voice my objection to the Dry Creek sewer going down Kinkaid.

Of the four principal wastewater transport alternatives, I am in favor of Number One, DRY CREEK, as it would inconvenience fewer people than any of the other alternatives.

Sincerely yours,

Anna Smallwood (Mrs.)
3930 East Kinkaid
Wichita, KS 67218

August 1, 1979

The Dry Creek Board of Directors met on Tuesday, July 31, 1979 and voted unanimously to re-affirm to the Environmental Protection Agency the stand taken by a vote of the Dry Creek Association membership as being unalterably opposed to the construction in Dry Creek of the proposed interceptor sewer.

"Dry Creek, within the project area, is a unique natural area within the city limits of Wichita. This riparian woodland with its heavy understory of shrubs, vines and small trees mixed with the extensive backyard landscaping form an area desirable both as an esthetic area for local residents as well as an important green area within the city. Too much of Wichita's riparian stream edge habitat is being bull-dozed out of existence into sterile channels lacking in species and habitat diversity and the pleasing esthetics of natural vegetation. . . . this project as planned will destroy too many of the large nesting trees, will significantly increase erosion and water run-off damage by removing the trees that currently protect the banks, will result in channelization of the stream (in the name of protecting the sewer) and will leave a vegetative scar that besides detroying the present habitat, will increase intrusions into the area by motorcycles and people who would disrupt the area for use by the local residents and the avifauna." (from report by Louis J. Bussjaeger, Assoc. Prof. of Biology, dated September 21, 1978, to the Environmental Protection Agency).

KATHERINE PENNINGTON, M.D.
Secretary-Treasurer
2113 S. Bluff
Wichita, Ks. 67218

Keith Sanborn

KEITH SANBORN
President, Dry Creek Association
2008 Reed Drive
Wichita, Ks. 67218

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APPENDIX I

FLORA AND FAUNA OF IMPACT AREA

TREES AND SHRUBS

COMMON NAME	SCIENTIFIC NAME	OCCURANCE *
American Elm	Ulmus americana	0
Siberian Elm	Ulmus pumila	0
Red Elm	Ulmus rubra	0
Austrian Pine	Pinus nigra	0
Silver Maple	Acer saccharinum	0
Black Walnut	Juglans nigra	0
Tree of Heaven	Ailanthus altissima	0
Black Locust	Robinia pseudoacacia	0
Russian Olive	Elaeagnus angustifolia	0
Osage Orange	Maclura pomifera	0
Rough-leaved Dogwood	Cornus drummondii	0
Kentucky Coffee Tree	Gymnocladus dioica	0
Panicled Goldenrain Tree	Koelreuteria paniculata	0
Soapberry	Sapindus drummondii	0
Hackberry	Celtis cccidentalis	0

COMMON NAME	SCIENTIFIC NAME	OCCURANCE *
Willow	*Salix* sp.	0
Red Cedar	*Juniperus virginiana*	0
Redbud	*Cercis canadensis*	0
Cottonwood	*Populus deltoides*	0
Mulberry	*Morus* sp.	0
Box Elder	*Acer negundo*	0
Green Ash	*Fraxinus pennsylvanica*	0
Catalpa	*Catalpa speciosa*	0
Bur Oak	*Quercus macrcarpa*	0
Thornless Locust	*Robinia* sp.	0
Shrub Althea	*Hibiscus syriacus*	0
Poison Ivy	*Rhus radicans* var. *vulgaris*	0
Bristly Greenbrier	*Smilax hispida*	0
Raccoon Grape	*Ampelopsis cordata*	0
Riverbank Grape	*Vitis riparia*	0
Virginia Creeper	*Parthenocissus quinquefolia*	0
Wahoo	*Euonymus atropurpurea*	0

COMMON NAME	SCIENTIFIC NAME	OCCURANCE *
Golden Current	*Ribes odoratum*	0
Bush Honeysuckle	*Lonicera* sp.	0
Multiflora Rose	*Rosa multiflora*	0
European Privet	*Ligustrum vulgare*	0
Smooth Sumac	*Rhus glabra*	0
Coralberry-Buckbrush	*Symphoricarpos occidentalis*	0
FISH		
Green Sunfish	*Lepomis cyanellus*	0
Black Bullhead	*Ictalurua melas*	0
Red Shiner	*Notropis lutrensis*	0
Fathead Minnow	*Pimephales promuelas*	P
REPTILES AND AMPHIBIANS		
Bullfrog	*Rana catesbeiana*	0
Leopard Frog	*Rana pipieus*	0
Northern Cricket Frog	*Acris crepitans*	0
Western Narrow-Mouth Frog	*Gastrophryne olivalea*	P
Rocky Mountain Toad	*Bufo woodhousei*	P
Snapping Turtle	*Chelydra serpentina*	P

COMMON NAME	SCIENTIFIC NAME	OCCURANCE *
Eastern Ornate Box Turtle	Terrapena ornata	P
Red-Side Garter Snake	Thamnphiss sirtalis	P
Bull Snake	Pituophis melanoleucus	P
Black Rat Snake	Elaphe obsoleta	P
Lined Snake	Tropidoclonion lineatum	P
Northern Water Snake		P
MAMMALS		
Short-tailed Shrew	Blarina breyicauda	P
Opossum	Didelphus marsupialis	P
Eastern Mole	Scalopus aquaticus	P
Red Bat	Lasiurus borealis	P
Eastern Cottontail	Sylvilagus floridanus	O
Fox Squirrel	Sciurus niger	O
Woods Mouse	Peromyscus leucopus	P
Eastern Woodrat	Neotoma floridana	P
Muskrat	Ondatra zibethicus	O
House Mouse	Mus musculus	P
Red Fox	Vulpes fulva	P
Raccoon	Procyon lotor	P

COMMON NAME	SCIENTIFIC NAME	OCCURANCE *
Striped Skunk	Mephitis mephitis	P
White-tailed Deer	Odocoileus virginianus	P
BIRDS		
Great Blue Heron	Ardea heroblia	O
Green Heron	Butorides virescers	O-N
Great Egret	Casmerodius albus	O
Black-Crowned Night Heron	Nyctiloray nyeticuaray	O
Yellow-Crowned Night Heron	Nyctanassa violacea	O-N
Mallard Duck	Anas platyrhyncuos	O-N
Wood Duck	Aix sponsa	P
Mandarin Duck		O-N
Common Flicker (Red-Shafted)	Colaptes cafer	O-N
Common Flicker (Yellow-Shafted)	Colaptes auratus	O
Red-Bellied Woodpecker	Centurus carolinus	O-N
Red-Headed Woodpecker	Melanerpes erythrocephalus	O-N
Yellow-Bellied Sapsucker	Sphyrapicus varius	O
Hairy Woodpecker	Dendrocopus villosus	O-N
Downy Woodpecker	Dendrocupus pubescens	O-N
Eastern Kingbird	Tyrannus tyrannus	O-N

COMMON NAME	SCIENTIFIC NAME	OCCURANCE *
Western Kingbird	Tyrannus verticalis	O-N
Scissor-Tailed Flycatcher	Muscivora furfigata	O-N
Great Crested Flycatcher	Muscivora crinitus	O-N
Eastern Phoebe	Sayornis phoere	O-N
Yellow-Bellied Flycatcher	Empidonax elavinentris	O
Acadian Flycatcher	Empidonax virescens	O-N
Willow Flycatcher	Empidonax traillii	P
Least Flycatcher	Empidonax minimus	P
Eastern Wood Pewee	Contopus virens	P-N
Olive-Sided Flycatcher	Nuttallornis borealis	P
Unidentified Flycatcher	Empidonax sp.	O
Barn Swallow	Hirundo rustica	O-N
Purple Martin	Progne suris	O-N
Blue Jay	Cyanocitta cristata	O-N
Common Crow	Corvus brachyrhynchos	O-N
Black-Capped Chickadee	Parus atricapillus	O-N
Tufted Titmouse	Parus bicolor	O-N
Mississippi Kite	Ictinia misisippiensis	O-N
Sharp-Shinned Hawk	Accipiter striatus	P

COMMON NAME	SCIENTIFIC NAME	OCCURANCE *
Red Tailed Hawk	*Buteo jamaicensis*	0
Rough-Legged Hawk	*Buteo lagopus*	0
Prairie Falcon	*Falc mexicanus*	0
White-Breasted Nuthatch	*Sitta carolinensis*	0-N
Red-Breasted Nuthatch	*Sitta canadensis*	0
Brown Creeper	*Certhia familiaris*	0
House Wren	*Troglodytes aedon*	0-N
Winter Wren	*Troglodytes troglodytes*	p
Bewick's Wren	*Tyryomares bewickii*	P-N
Carolina Wren	*Thryothorus ludovicianus*	0-N
Mockingbird	*Mimus polyglottos*	0-N
Gray Catbird	*Dumetella carolinensis*	0-N
Brown Thrasher	*Toxostoma rufum*	0-N
Robin	*Turdus migratorius*	0-N
Wood Thrush	*Hylocichla mustelina*	0
Hermit Thrush	*Hylocichla guttata*	0
Swainson's Thrush	*Hylocichla ustulata*	0
Gray-Cheeked Thrush	*Hylocichla miuima*	0
Veery	*Hylocichla fusceslens*	0

COMMON NAME	SCIENTIFIC NAME	OCCURANCE *
Western Bluebird	*Sialia sialis*	O-N
Townsend's Solitaire	*Myadestes townsendi*	O
Blue-Gray Gnatcatcher	*Polioptila caerulea*	P-N
Golden-Crowned Kinglet	*Regulus satrapa*	P
Ruby-Crowned Kinglet	*Regulus calendula*	O
Cedar Waxwing	*Bombycilla cedrorum*	O
Starling	*Sturnus vulgaris*	O-N
Bobwhite	*Colinus virgianus*	O-N
Ring-Necked Pheasent	*Phasianus colchicus*	O
[1] Sandhill Crane	*Grus cavadensis*	O
Virginia Rail	*Rallus limicula*	O
American Woodcock	*Philohela minor*	P
Spotted Sandpiper	*Actitis macularia*	P
Bell's Vireo	*Vireo bellii*	P-N
Solitary Vireo		P
Red-Eyed Vireo	*Vireo olivaceus*	O-N
Philadelphia Vireo	*Vireo philadelphicus*	P
Warbling Vireo	*Vireo gilvus*	O-N

1. Dead when observed.

COMMON NAME	SCIENTIFIC NAME	OCCURANCE*
Yellow-Throated Vireo	Vireo flavifrons	O
Black and White Warbler	Mniotilta varia	P
Tennessee Warbler	Vermivora peregina	O
Orange-Crowned Warbler	Vermivora celata	O
Yellow Warbler	Dendroica petechia	O-N
Magnolia Warbler	Dendroica magnolia	O
Cape May Warbler	Dendroica tigrina	O
Myrtle Warbler	Dendroica coronata	O
Audubon's Warbler	Dendroica audubcui	O
Black-Throated Green Warbler	Dendroica virens	P
Blackburnian Warbler	Dendroica fusca	P
Chestnut-Sided Warbler	Dendroica pensylvanica	P
Blackpoll Warbler	Dendroica striata	O
Palm Warbler	Dendroica palmarum	P
Ovenbird	Seiurus aurccapillus	P
Northern Waterthrush	Seiurus noveboralensis	P
Louisiana Waterthrush	Seiurus motalilla	P
Mourning Warbler	Opororuis philadelphia	O-N

COMMON NAME	SCIENTIFIC NAME	OCCURANCE *
MacGilliuray's Warbler	*Opurornis tolmiei*	P
Common Yellow Throat	*Geothlypis trichas*	P
Yellow-Breasted Chat	*Icteria virens*	P
Wilson's Warbler	*Wilsonia pusilla*	0
American Redstart	*Setophaga ruticilla*	P
Worm-Eating Warbler	*Helmitheros vermivorus*	0
Connecticut Warbler	*Oporornis agilis*	0
House Sparrow	*Passer domesticus*	0-N
Eastern Meadowlark	*Sturnella magna*	P-N
Western Meadowlark	*Sturnella neglecta*	0
Red-Winged Blackbird	*Agelaius phoeniceus*	0-N
Orchard Oriole	*Icterus spurius*	0-N
Baltimore Oriole	*Icterus galbula*	0-N
Rusty Blackbird	*Euphagus carolinus*	0
Brewer's Blackbird	*Euphagus cyanocephalus*	P
Common Grackle	*Quiscalus guiscula*	0-N
Brown-Headed Cowbird	*Molothrus ater*	0-N
Franklin's Gull	*Larus pipiycan*	0
Rock Dove	*Columba livia*	0-N

COMMON NAME	SCIENTIFIC NAME	OCCURANCE*
Mourning Dove	*Zenaidura malroura*	O-N
Yellow-Billed Cuckoo	*Coccyzus americanus*	O-N
Black-Billed Cuckoo	*Coccyzus elythrophthalmus*	P
Screech Owl	*Otus asio*	O-N
Great Horned Owl	*Bubo virginianus*	O
Saw-Whet Owl	*Aegolius acadica*	P
Common Nighthawk	*Chordeiles minor*	O-N
Chimney Swift	*Chaetura pelagica*	O-N
Ruby-Throated Hummingbird	*Archilochus colubris*	O-N
Belted Kingfisher	*Megaceryle alcyon*	P
Scarlet Tanager	*Piranga olivalea*	P
Summer Tanager	*Piranga rubra*	P
Cardinal	*Richmondena cardinalis*	O-N
Rose-Breasted Grosbeak	*Pheucticus ludovicianus*	O-N
Indigo Bunting	*Passerina cyanea*	P
Purple Finch	*Carpodalus purpureus*	O
Pine Siskin	*Spinus pinus*	O
American Goldfinch	*Spinus tristis*	O-N
Red Crossbill	*Loxia curvirostra*	O

COMMON NAME	SCIENTIFIC NAME	OCCURANCE *
Rufous-Sided Towhee	Pipilo erythrophthalmus	0
Vesper Sparrow	Pooeletes gramineus	0
Slate-Colored Junco	Junco hyemalis	0
Oregon Junco	Junco oreganus	0
Tree Sparrow	Spizella arborea	0
Chipping Sparrow	Spizella passerina	0
Clay-Colored Sparrow	Spizella pallida	0
Harris Sparrow	Zonotrichia querula	0
White-Crowned Sparrow	Zonotrichia leucophrys	0
White-Throated Sparrow	Zonotrichia albicollis	0
Fox Sparrow	Passerella iliaca	P
Lincoln's Sparrow	Melospiza linculnii	0
Swamp Sparrow	Melospiza georgiana	P
Song Sparrow	Melospiza melodia	0

* 0=OBSERVED N=NESTING SPECIES P=HABITATE AVAILABLE POSSIBLE OCCURENCE

APPENDIX II

Capital Cost and Present Worth of Alternatives

Evaluation and criteria for the costs of the alternatives are based on 1978 cost estimates derived from local contractors and suppliers, bid prices of similar Region VII projects, and engineering estimates.

Useful life and salvage value of project components and method for cost effective analysis were determined from Appendix A of 40 CFR part 35, Grants for Construction of Treatment Works. An interest (discount) rate of 7 percent was used for analysis.

Unit Terms Used in Following Tables

LF - Linear Feet
EC - Each
SY - Square Yards
CY - Cubic Yards
SF - Square Feet
LS - Lump Sum

DRY CREEK: TOTAL ESTIMATED CAPITAL COST AND SALVAGE VALUE

Quantity	Unit	Item	Unit Cost	Total	Salvage
1500	LF	36" CRP-PVC Lined Class III	$ 140/LF	$210,000	$105,000
204	LF	36" CRP-PVC Lined Class IV	150/LF	30,600	15,300
1230	LF	24" VCP Pipe	90/LF	110,700	55,350
1	EC	Siphon	40,000/EC	40,000	20,000
263	LF	10" PVC Pipe	20/LF	5,260	0
251	LF	8" PVC Pipe	17/LF	4,267	0
5	EC	4' diameter manholes	2,000/EL	10,000	0
6	EC	5' diameter manholes	2,500/EC	15,000	0
11	EC	Special manholes	4,500/EL	49,500	0
4	EC	Abandon manholes	200/EC	800	0
1	EC	Remove manholes	500/EC	500	0
4	EC	Modified manholes	500/EC	2,000	0
1700	LF	Abandon existing line	7/LF	11,900	0
220	LF	36" Pipe Encasement	75/LF	16,500	0
40	LF	Pipe Encasement	50/LF	2,000	0

DRY CREEK: TOTAL ESTIMATED CAPITAL COST AND SALVAGE VALUE

Quantity	Unit	Item	Unit Cost	Total	Salvage
365	SY	Pavement removed and replaced	$ 30/SY	$ 10,950	$ 0
85	SY	Driveway removed and replaced	25/SY	2,125	0
5	EC	Creek Crossing	5,000/EC	25,000	0
760	CY	Gabions	75/CY	57,000	0
400	SY	Riprap	50/SY	20,000	0
160	SF	Sidewalk removed and replaced	10/SF	1,600	0
	LS	Site Clearing	16,500/LS	16,500	0
	LS	Site Restoration	21,500/LS	21,500	0
				$663,702	$195,650

Construction Cost	$663,702		
Design Cost	48,500		
Contingencies	66,370		
Interest during construction	7,665		
Total Capital Cost	$786,237	Total Salvage	$195,650

MT. VERNON GRAVITY: TOTAL ESTIMATED CAPITAL COST AND SALVAGE VALUE

Quantity	Unit	Item	Unit Cost	Total	Salvage
5080	LF	36" CRP-PVC Lined class III	$ 140/LF	$711,200	$355,600
1500	LF	36" CRP-PVC Lined	150/LF	225,000	112,500
18	EC	Special Manholes	4,500/EL	81,000	0
9500	SY	Pavement removed and replaced	30/SY	285,000	0
1700	LF	10" Slipliner	35/LF	59,500	0
8	EC	Modified Manholes	500/EC	4,000	0
150	CY	Gabions	75/CY	11,250	0
60	SY	Riprap	50/SY	3,000	0
				1,379,950	468,100

Construction Cost	1,379,950	
Design Cost	77,285	
Contingencies	138,000	
Interest during construction	45,895	
Original design cost	48,500	
Total Capital Cost	$1,689,630	Total Salvage $468,100

MT. VERNON FORCE MAIN: TOTAL ESTIMATED CAPITAL COST AND SALVAGE VALUE

Quantity	Unit	Item	Unit Cost	Total	Salvage
6580	LF	20" CIP Force Main	$ 60/LF	$ 394,800	$197,400
1	EC	8800 GPM Pump Station	400,000/EC	400,000	0
9500	SY	Pavement removed and replacement	30/SY	285,000	0
1700	LF	10" Slipliner	35/LF	59,500	0
8	EC	Modified Manholes	500/EC	4,000	0
150	CY	Gabions	75/CY	11,250	0
60	SY	Riprap	50/SY	3,000	0
				$1,157,550	$197,400

Construction Cost	$1,157, 550
Design Cost	76,400
Contingencies	115,768
Interest During construction	23,950
Original Design Cost	48,500
Total Capital Cost	$1,422,168

Total Salvage $197,400

BLUFF GRAVITY: TOTAL ESTIMATED CAPITAL COST AND SALVAGE VALUE

Quantity	Unit	Item	Unit Cost	Total	Salvage
735	LF	36" CRP-PVC Liner class III	140/LF	$102,900	$ 51,450
1600	LF	36" CRP-PVC class IV	150/LF	240,000	120,000
1230	LF	24" PVC Pipe	90/LF	110,700	55,350
1	EC	Siphon	40,000/EL	40,000	20,000
1700	LF	10" Slipliner	35/LF	59,500	0
7	EL	4' Diameter manholes	2,000/EC	14,000	0
4	EC	5' Diameter manholes	2,500/EC	10,000	0
8	EC	Modified manholes	500/EC	4,000	0
13	EC	Special manholes	4,500/EC	58,500	0
2311	SY	Pavement removed and replaced	30/SY	69,330	0
160	SF	Sidewalk removed and replaced	10/SF	1,600	0
100	LF	36" Pipe Encasement	75/LF	7,500	0

BLUFF GRAVITY: TOTAL ESTIMATED CAPITAL COST AND SALVAGE VALUE

Quantity	Unit	Item	Unit Cost	Total	Salvage
450	CY	Gabions	$ 75/CY	$ 33,750	$ 0
210	SY	Riprap	50/SY	10,500	0
2	EC	Creek crossings	5,000/EC	10,000	0
	LS	Site clearing	LS	5,750	0
	LS	Site restoration	LS	7,150	0
				785,180	$246,800

Construction Cost	$ 785,180		
Design Cost	56,700		
Contingencies	78,520		
Interest during construction	16,100		
Original design cost	48,500		
Total Capital Cost	$ 985,000	Total Salvage	$246,800

BLUFF FORCE MAIN: TOTAL ESTIMATED CAPITAL COST AND SALVAGE VALUE

Quantity	Unit	Item	Unit Cost	Total	Salvage
2350	LF	20" CIP Force Main	$ 60/LF	$141,000	$ 70,500
1	EC	8800 GPM Pump Station	400,000/LF	400,000	0
1230	LF	24" LCP Pipe	90/LF	110,700	55,350
1	EC	Siphon	40,000/EC	40,000	20,000
1700	LF	10" Slipliner	35/LF	59,500	0
100	LF	Pipe Encasement	75/LF	7,500	0
8	EL	Modified Manholes	500/EL	4,000	0
4	EL	5' Diameter manholes	2,500/EL	10,000	0
3	EL	4' Diameter manholes	2,000/EL	6,000	0
2311	SY	Pavement removal and replacement	30/SY	69,330	0
160	SF	Sidewalk removal and replacement	10/SF	1,600	0
2	EC	Creek crossings	5,000/EC	10,000	0
450	CY	Gabions	75/CY	33,750	0

BLUFF FORCE MAIN: TOTAL ESTIMATED CAPITAL COST AND SALVAGE VALUE

Quantity	Unit	Item	Unit Cost	Total	Salvage
210	SY	Riprap	$ 50/SY	$ 10,500	$ 0
	LS	Site Clearing	LS	5,750	0
	LS	Site Restoration	LS	7,150	0
				$916,780	$145,850

Construction Cost	$ 916,780		
Design Cost	64,620		
Contingencies	91,678		
Interest during construction	12,347		
Original design cost	48,500		
Total Capital Cost	$1,133,925	Total Salvage	$145,850

COST EFFECTIVE ANALYSIS

(7% INTEREST)

Cost	Interest Factor	Dry Creek	Mt. Vernon Gravity	Mt. Vernon Force Main	Bluff Gravity	Bluff Force Main
Capital Cost	1.00	786,237	1,689,763	1,422,301	985,000	1,133,925
Operation and Maintenance	10.594	0	0	272,477	0	101,172
Salvage Value	0.2584	-50,555	-120,957	-51,008	-63,773	-37,684
Total Present Worth		735,682	1,568,806	1,643,770	921,227	1,197,413

Appendix III

This appendix contains information used by EPA to determine if the Dry Creek Sewer is hydrology overloaded and as such requires replacement with a pipe of greater capacity.

Definitions:

Infiltration: Water other than sanitary wastewater which enters a sanitary sewer as a result of cracks in the pipe, leaky pipe joints or deteriorated manholes. Infiltration occurs when the groundwater level rises above the pipe.

Inflow: Water, other than sanitary wastewater which enters a sanitary sewer by such means as direct connection roof or foundation drains, sump pumps, or holes in manhole covers.

10-year - 24-hour storm: There is a 10 per cent chance of having a rainstorm that lasts for 24 hours with "X" inches of total rainfall. The amount of rainfall depends on the geographical location.

Assumptions

1. One inch of rain results in .515 million gallons (MG) of infiltration/ inflow (I/I).
2. A 10-year - 24-hour storm results in 6 inches of rain.*
3. The hourly distribution of the rainfall follows a Type II distribution.*
4. Daily wastewater flow distribution is as recorded on June 19, 1976 (see Table AIII-1).

5. The maximum capacity of the sanitary sewer below the intersection of Mt. Vernon and Bluff is .275 million gallons per hour (MGH).

6. Peak I/I flow occurs at the same time as peak sewerage flow.

* Hjemfelt, Allen T. and John T. Cassidy, 1975, Hydrology for Engineers and Planners, Iowa University Press

Time	Cummulative Rainfall	Incremental Rainfall	Incremental Infiltration	Incremental Wastewater Flow	Total Incremental Flow	Incremental Excess
1	.06	.060	.031	.103	.134	0
2	.132	.072	.037	.087	.124	0
3	.204	.072	.037	.074	.111	0
4	.288	.084	.043	.058	.101	0
5	.372	.084	.043	.052	.095	0
6	.480	.108	.056	.050	.106	0
7	.600	.120	.062	.052	.114	0
8	.720	.120	.062	.069	.131	0
9	.882	.162	.083	.094	.177	0
10	1.086	.204	.105	.129	.234	0
11	1.410	.324	.167	.165	.332	.057
12	3.978	2.568	1.323	.168	1.491	1.216
13	4.632	.654	.337	.175	.512	.237
14	4.920	.288	.148	.163	.311	.036
15	5.130	.210	.108	.156	.264	0
16	5.280	.150	.077	.140	.217	0
17	5.412	.132	.068	.132	.200	0
18	5.526	.114	.059	.140	.199	0
19	5.580	.054	.028	.138	.166	0
20	5.712	.132	.068	.138	.206	0
21	5.808	.096	.049	.132	.181	0
22	5.880	.072	.037	.124	.161	0
23	5.946	.066	.034	.127	.161	0
24	6.000	.054	.028	.124	.152	0

Crew [illegible]

FIELD TESTING FOR CORRELATION OF FLOW MEASUREMENTS

Date 6-23-76

Location	Bk# & Pg#	Station	Direction Fm.	Pipe Size (in)
N.W. (E) of MT. VERNON & BLUFF	E-13-15? I-105	7+53 to 3+99	N.E.	30

VELOCITY: DEPTH 11.3 (in.) AREA 1.69 ft^2 TOD (time of day) 8:45 A.M.

Dye: $\frac{L}{et}$ = $\frac{354'}{140.9}$ = 2.51 fps i.e., Q = 1904 GPM

Price Meter: Count 56 Time 45.8 Vel = 2.45 fps Q = 1858 GPM

2.48 fps avg.

MANHOLE IDENTIFICATION 3+99

INVERT TO COVER 10 Ft. 8 In.

MANHOLE FRAME & COVER ASPHAULT - 1½" x ½" slot

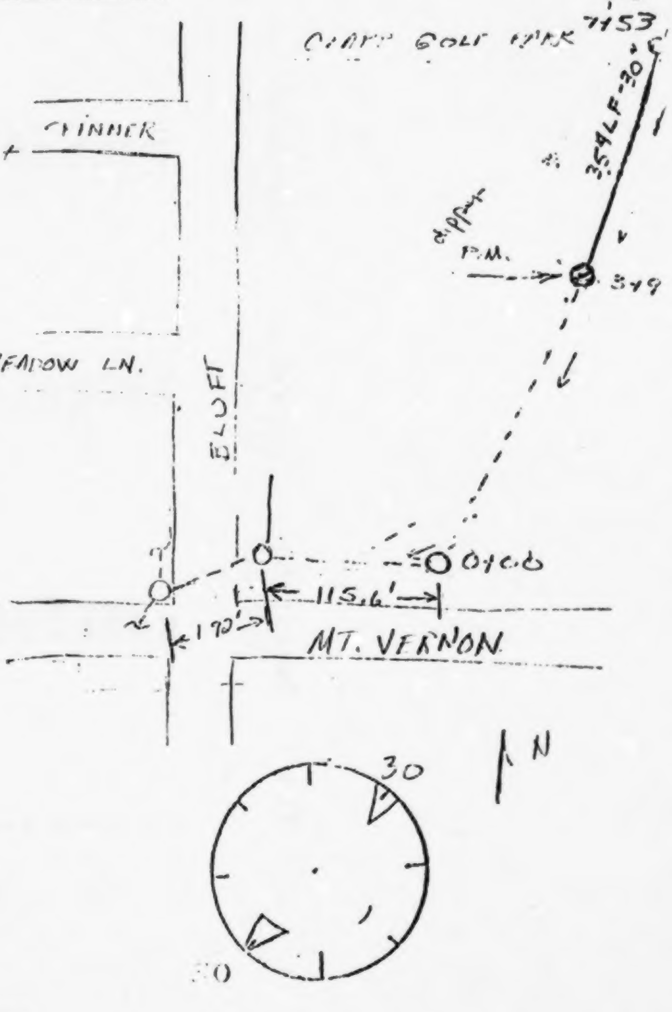
RAISE/LOWER FRAME — Ft. — In.

MANHOLE CONSTRUCTION IS

BRICK IN GOOD CONDITION

REMARKS:

M.H. WALLS DAMP AT THE BOTTOM


CLARK GOLF PARK
7+53
354 LF-30"
dye
P.M.
3+99
SKINNER
MEADOW LN.
BLUFF
0+00
115.6'
170'
MT. VERNON
N
30
30

TYPE OF SEWER SANITARY

TYPE OF PIPE T.C.

CONDITION OF PIPE VISIBLE FROM MANHOLE GOOD IN LINE N.E. & S.W. OF 3+99

DEGREE & TYPE OF RESTRICTION 1½" CHIP IN JOINT AT N.E. INVERT INTO M.H.

REMARKS:

vicinity where dipper was placed

DIPPER GAGE

LOCATION: N.E. fm. Mt Vernon & Bluff

PIPE SIZE = 30 " DATE 6-15 to 22 1976

MEAS. VEL. = 2.48 fps d at 11.3" @ 0845 6-22-76 AREA 1.69 ft² FLOW (Q) = ______ gpm

MIN. DEPTH = 5.9 " at 0600

AREA = 0.68 sq. ft.

APPROX. Q = 757 gpm

RATIO (max/min) = 5.64

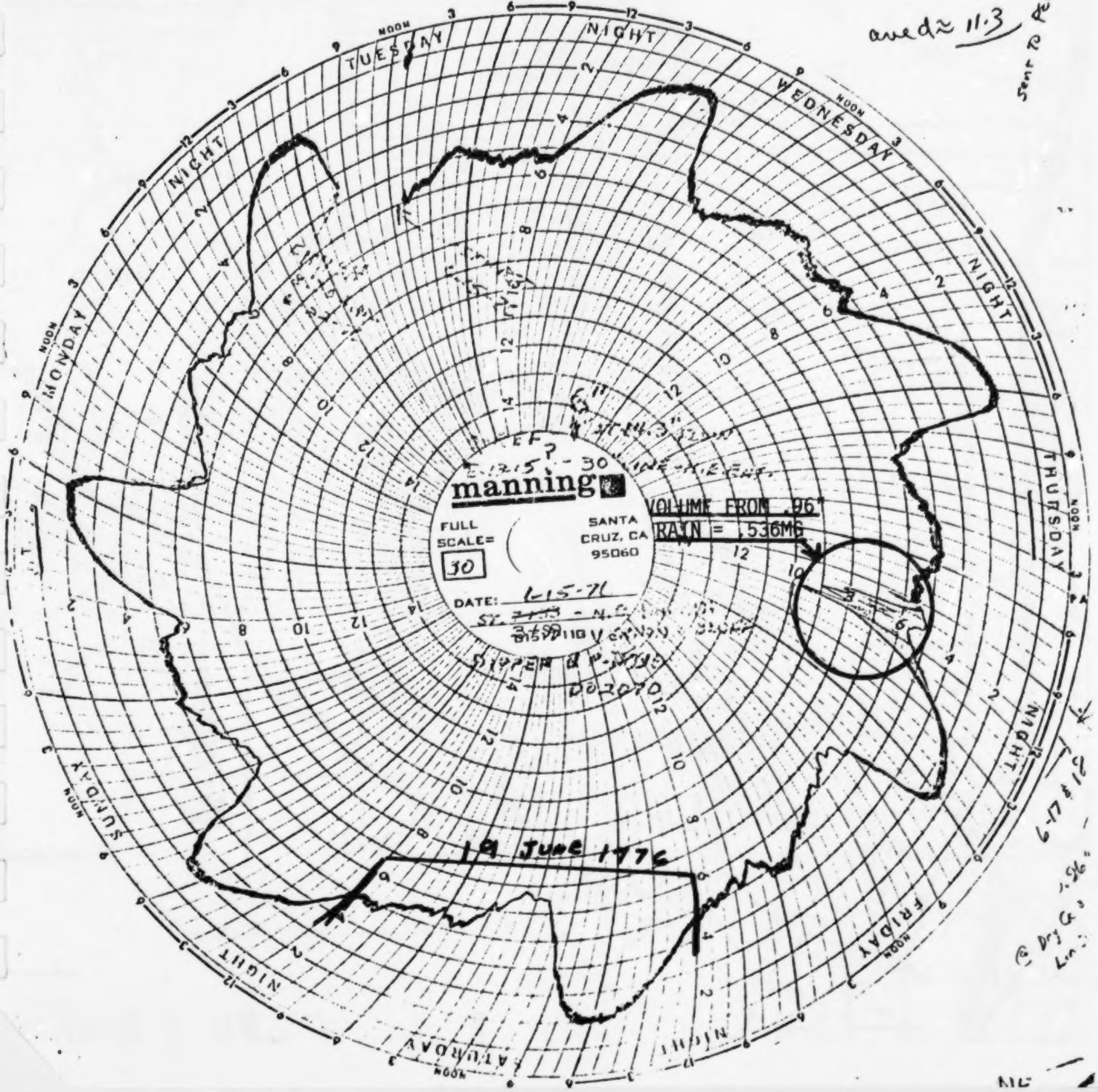
MAX. DEPTH = 21.9 " 16.5 Ave Pk 2.77 ft² Q= 3083

AREA 3.84 sq. ft.

APPROX. Q = 4274 gpm 6.15 mgd

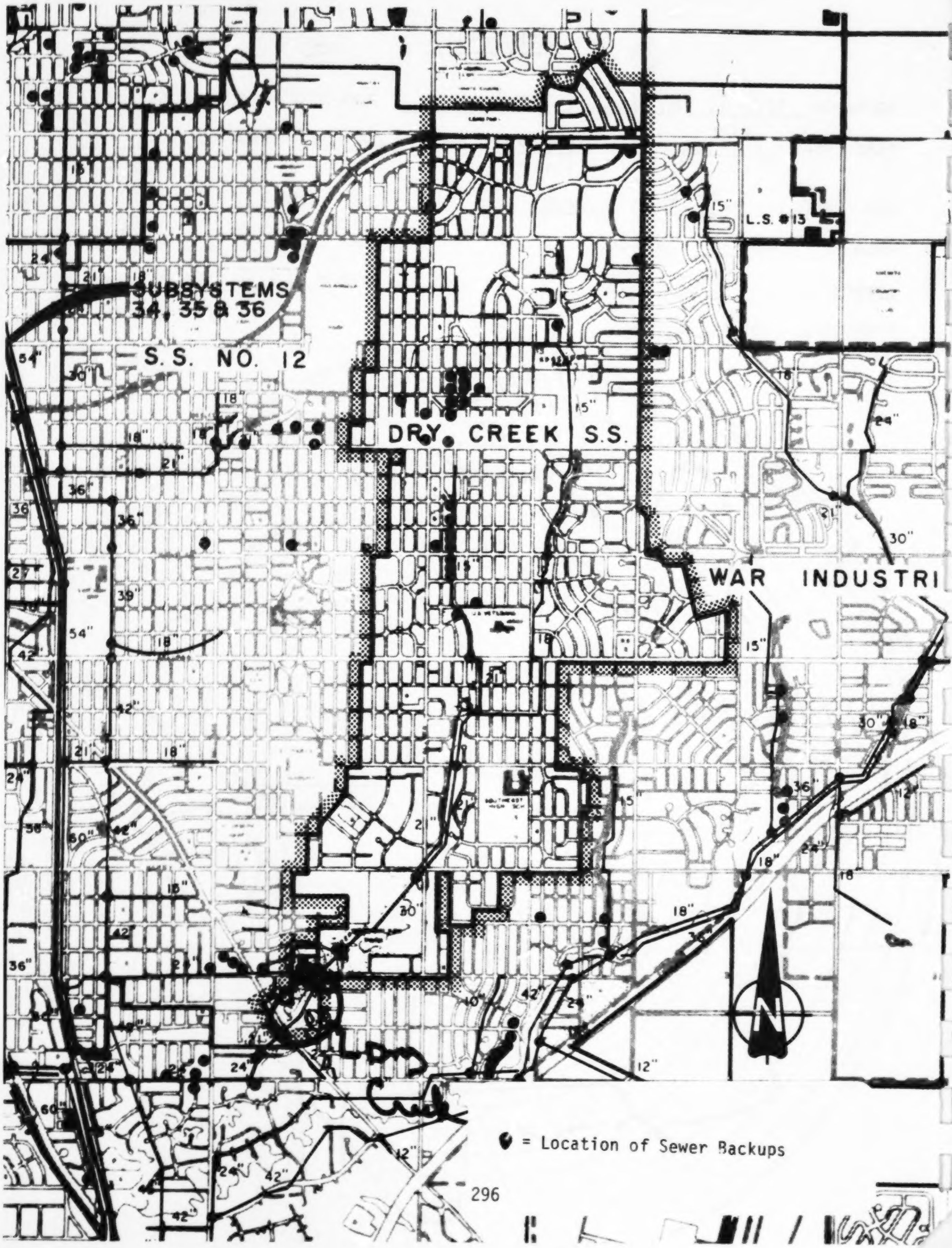
ave d ≈ 11.3

Sent to Rec



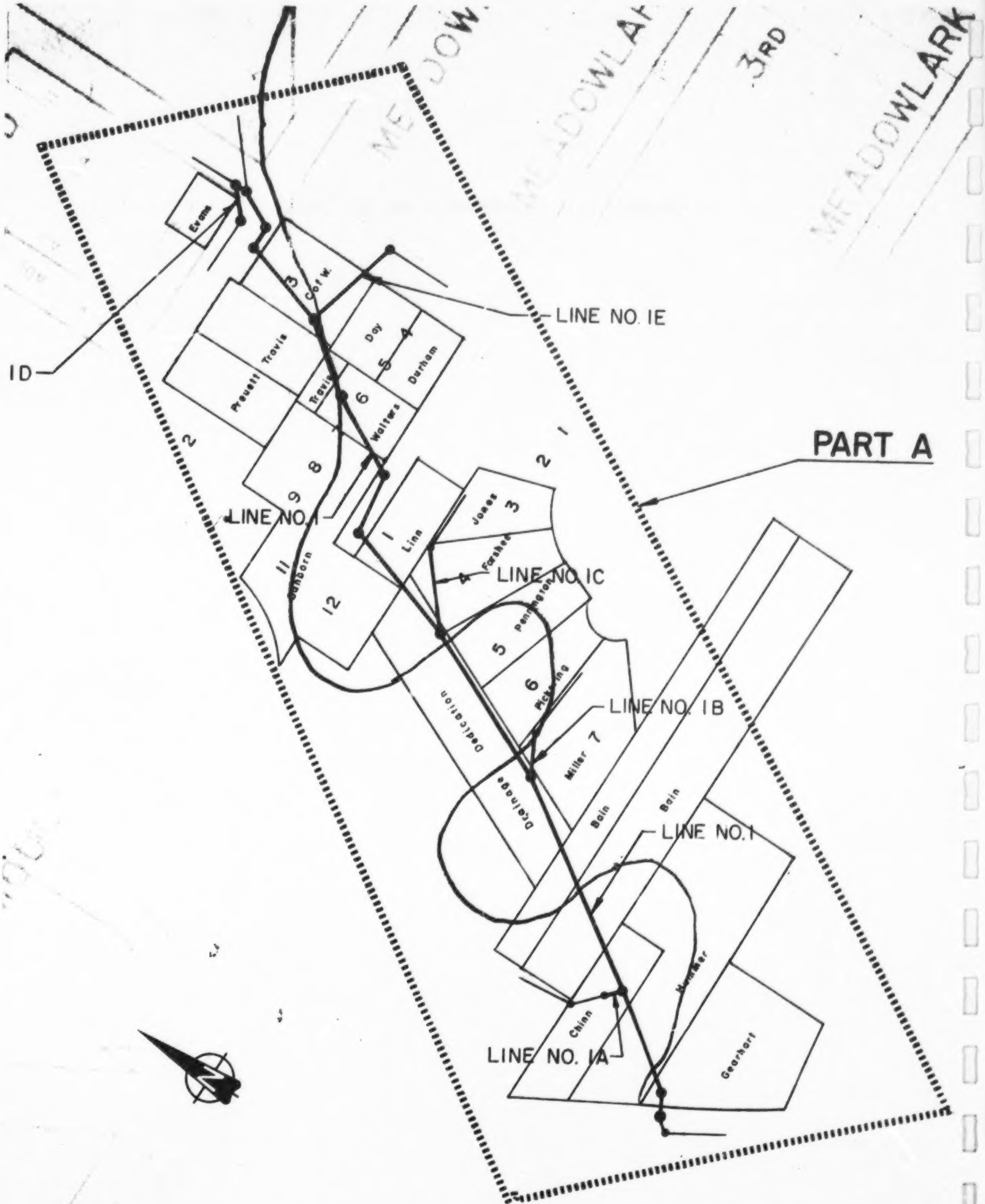
6-17 & 18

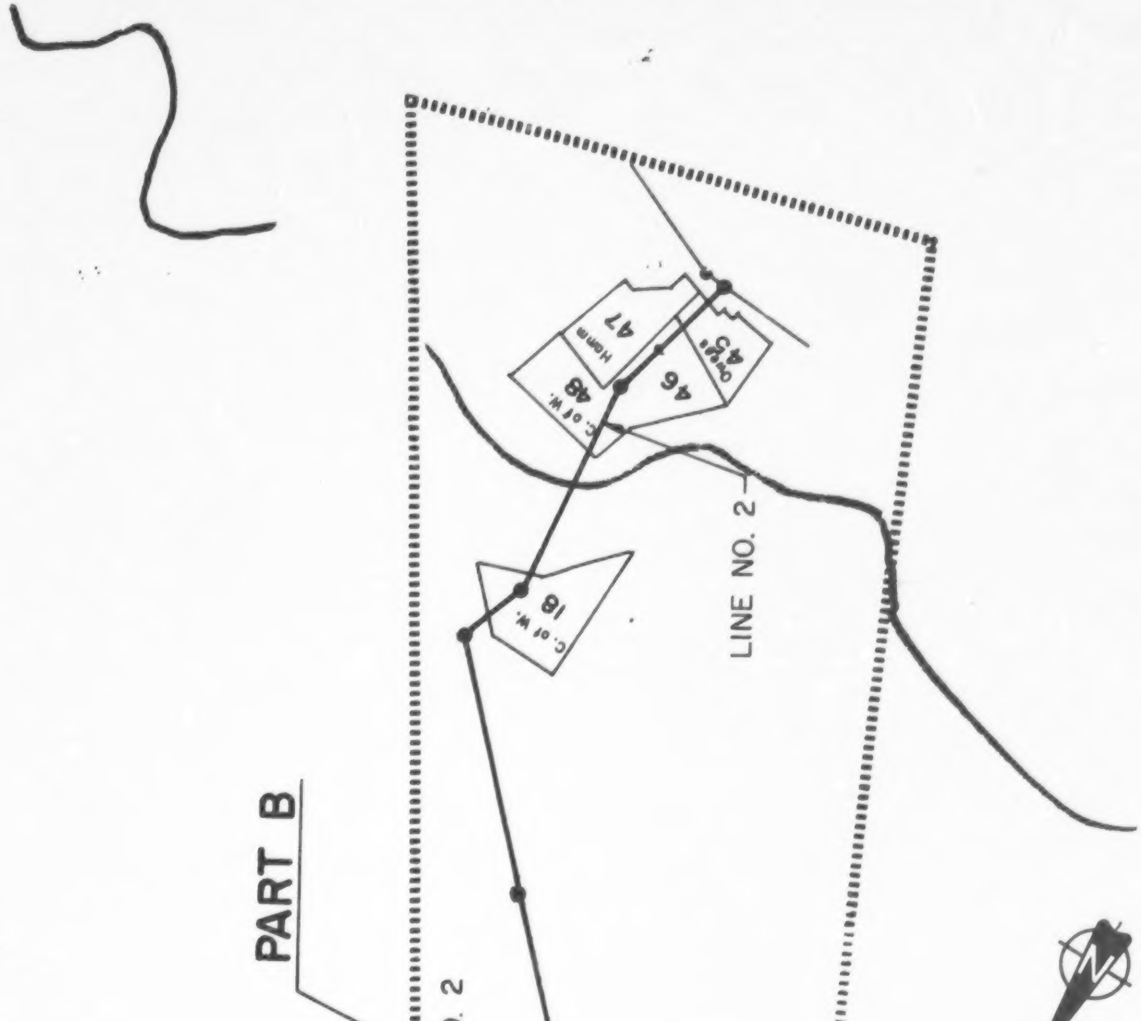
@ Dry G's 1.96" Lin:


SUBSYSTEMS
34, 35 & 36
S.S. NO. 12
DRY CREEK S.S.
WAR INDUSTRI
L.S. #13
Dry Creek
15"
18"
21"
24"
30"
36"
39"
42"
54"
60"
12"
10"

● = Location of Sewer Backups

APPENDIX IV: LANDOWNERS ALONG DRY CREEK


MEADOWLARK
3RD
LINE NO. 1E
1D
Evans
C of W.
Travis
Day
Durham
Prewett
Walters
PART A
LINE NO. 1
Linn
Jones
Forshee
LINE NO. 1C
Sanborn
Pennington
Pickering
Dedication
LINE NO. 1B
Drainage
Miller
Bain
Bain
LINE NO. 1
Hammer
Chinn
LINE NO. 1A
Gearhart


PART B
LINE NO. 2
LINE NO. 2
C. of W.
18
C. of W.
48
Hamm
47
46
Owens
45
N

ATTENTION

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